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UNITED STATES FISH AND WILDLIFE SERVICE

FIRE MANAGEMENT PREPAREDNESS AND PLANNING HANDBOOK

(621 FW)

95-027078

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FIRE MANAGEMENT PREPAREDNESS AND PLANNING HANDBOOK

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FIRE MANAGEMENT PREPAREDNESS AND PLANNING HANDBOOK

1.0 INTRODUCTION

The purpose of the Fire Management Preparedness and Planning Handbook is to provide general planning and operational guidance for fire management programs in the Fish and Wildlife Service. This handbook supplements the policies, objectives, and standards for fire management presented in the Fish and Wildlife Service, Service Manual and the Department of the Interior, Departmental Manual (910 DM). Any inconsistencies in the Handbook with the Departmental and Service Manuals will be resolved in their favor. Separate Handbooks are issued for the operational aspects of prescribed fires (Prescribed Fire Management Handbook) and wildfires (Wildfire Suppression Operations Handbook). These three Handbooks are collectively known as the Fire Management Handbook.

Throughout the handbook the term refuge is used to describe administrative units of the Fish and Wildlife Service. For the purpose of this handbook, refuge is used in the generic sense to include all lands in the Service land unit system (i.e., refuges, coordination areas, waterfowl production units, fish hatcheries, research units, educational centers, and other conservation areas established under Service authority). Refuge manager is also used in the generic sense to include any Service land unit line officer.

1.1 PROGRAM MANAGEMENT

1.1.1 POLICY

Service fire management policy is based on the Departmental Manual, (910 DM 1-3). It is the policy of the Service that:

A. Every wildland fire is either a wildfire or a prescribed fire. The Service will employ prescribed fire whenever it is an appropriate tool for managing Service resources; and to protect against wildfire whenever it threatens human health, private property, or Service resources.

B. The safety of personnel involved in fire management on Service lands is of paramount concern. With the possible exception of instances where the life of another is threatened, no Service employee, contractor, or cooperator will be purposely exposed to life-threatening conditions or situations.

C. Only trained and qualified people will be assigned to fire management duties. Personnel will be issued personal protective equipment and will be trained in its proper use.

1.1.2 RESPONSIBILITY

The Secretary has given responsibility for the operation of the fire management program on Service lands to the Director of the U.S. Fish and Wildlife Service (910 DM 1.2).

A. Director. The Director has overall responsibility for Servicewide fire management. The Director will ensure that all Regional fire management activities are formally evaluated.

B. Assistant Director - Refuges and Wildlife (ARW). The Division of Refuges under the Assistant Director provides the technical leadership for the fire management program. The division also formally evaluates all Regional fire management activities at least every 5 years. The Assistant Director is authorized to promulgate and approve the Fire Management Handbooks and other fire related handbooks as needed to provide guidance.

C. Service Fire Management Coordinator (SFMC). The SFMC, is also the Chief of the Fire Management Branch in the Division of Refuges and is the Service representative at the National Interagency Fire Center (NIFC). The Fire Management Branch is responsible for providing technical direction and coordination of fire management planning, policy development, and procedures Servicewide. The SFMC, or the acting designee, is responsible for implementing the decisions of the National Multi-Agency Coordinating Group (MAC Group) as they affect U.S. Fish and Wildlife Service areas.

D. Regional Director. The Regional Director is responsible for the fire management program in the Region and for designating a Regional Fire Management Coordinator. The Regional Director, through the Regional Fire Management Coordinator, will provide

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fire management program support to Service research facilities located within his/her geographic Region.

E. Regional Fire Management Coordinator (RFMC). The RFMC provides coordination, training, planning, evaluation, and technical guidance for the Region and is available to provide assistance for intra-agency and interagency fire management needs.

F. Project Leader. The project leader is responsible for planning and implementing an effective fire management program on Service lands under his/her jurisdiction. The project leader determines the level of fire management effort required to meet the wildlife management objectives of each unit. Appropriate suppression action will be taken by the project leader on all fires on, or adjacent to, Service lands to prevent or reduce the adverse impacts of fires on Service resources. If the fire management program warrants, the project leader will establish a position to function as the Fire Management Officer for the field office (see G below). Otherwise, the project leader will assign the fire management responsibilities to a staff member as a collateral duty.

G. Fire Management Officer (FMO). These individuals may be located at some larger refuges. They are in dedicated, fire funded positions, and as such are a Regional and national resource. They may be called upon to assist in both intra-agency and interagency fire management needs. Seasonal personnel hired as fire crews on refuges are also considered to be a Regional and national resource. Resources of this type will be made available for off-refuge dispatch.

1.1.3 INTERAGENCY COORDINATION AND COOPERATION

Interagency cooperation is vital to the full realization of Fish and Wildlife Service fire management program objectives. The ability of a single agency to implement a fire management program of any complexity is limited without coordination with and assistance from other organizations. Congress only funds the Fish and Wildlife Service to provide initial attack capability on Fish and Wildlife Service lands. Fires escaping initial attack or becoming project size fires usually require interagency support. Interagency cooperation and the coordination of shared resources and common activities is imperative at all organizational levels. A clear understanding of the roles each agency has at each organizational level is necessary to maximize the benefits of interagency coordination and assure the fulfillment of agency responsibilities.

Interagency Assistance

The authority for interagency agreements is found in "Interagency Agreement Between the Bureau of Land Management, Bureau of Indian Affairs, National Park Service, Fish and Wildlife Service of the United States Department of the Interior and the Forest Service of the United States Department of Agriculture" (1982).

The authority for rendering emergency fire or rescue assistance outside of the Fish and Wildlife is the Reciprocal Fire Protection Act of May 27, 1955 (69 Stat. 66), and the Departmental Manual (910 DM).

Coordination

National Level Coordination:

1. The National Wildfire Coordinating Group (NWCG) was formed on March 18, 1976, by cooperative agreement between the Secretaries of Agriculture and Interior. The purpose of NWCG is to improve the effectiveness and efficiency of all Federal and state wildfire control agencies in the United States. The group accomplishes this goal by coordinating the programs of the participating agencies in order to provide a means for working together constructively. NWCG provides a formalized system through which agreement may be reached on substantive issues in fire management. Agreed-upon policies, standards, and procedures are then implemented directly by each agency. The Service Fire Management Coordinator (SFMC) is the Fish and Wildlife Service representative on the NWCG.

2. The Interior Fire Coordination Committee (IFCC) guides and coordinates development of wildland fire policy among the four wildland management bureaus in the Department of Interior. IFCC provides leadership and advice for the development, coordination and maintenance of wildland fire management capabilities, and for the standardization of procedures, methods and practices within the Department. Fish and Wildlife Service units must comply with these DOI standards. The Service Fire Management Coordinator (SFMC) is the Fish and Wildlife Service representative on the IFCC.

3. National Interagency Fire Center (NIFC) is located at Boise, Idaho, and is a complex of federal bureaus all of which have fire responsibilities. The Bureau of Land Management serves as the host bureau for the National Park Service, Bureau of Indian Affairs and the Fish and Wildlife Service. The U. S. Forest Service from the Department of Agriculture and the National Weather Service from the Department of Commerce are also located at NIFC. These bureaus and agencies form an interagency partnership aimed at providing efficiency and economy in the field of fire management to include presuppression, suppression and fire use.

Regional Level Coordination. Regional offices oversee and facilitate the implementation of interagency standards and policies developed at the national level. RFMC's facilitate and coordinate participation in national training, overhead teams, and task groups. Through coordination with counterparts from other agencies, RFMC's assure that the Fish and Wildlife Service contributes appropriately to regional interagency training and overhead needs.

Refuge Level Coordination. The refuge Fire Management Plan and any supporting documents identify the necessary local sources, types, and levels of interagency coordination. They also delineate the process whereby compliance with national and regional policies and standards will be achieved. Refuge managers and their staffs maintain and execute the Fire Management Plan and cooperative interagency relationships.

Interagency Mobilization

National Mobilization. Mobilization tests interagency cooperation and demonstrates the value of interagency coordination. The National Interagency Mobilization Guide, which is revised annually, clearly describes interagency mobilization and dispatch procedures at all levels. Its directives will be followed by all refuges and regions without deviation.

Regional Coordination. Regional dispatch normally occurs through geographical coordination centers to meet wildland fire mobilization requirements. These centers review simultaneously occurring incidents and dispatch interagency resources on a priority basis. This resource allocation process is often done through a Multi-Agency Coordinating Group (MAC Group). A refuge may be called upon to provide resources or to receive requested resources based upon the priorities established by the MAC Group.

Local Coordination. Refuges should become familiar with the geographical dispatch center through which their personnel are dispatched and resources are requested.

Agreements and Contracts

Refuges should develop agreements or contract with local agencies and fire departments to meet mutual needs or contract for suppression and/or prescribed fire services. Concerns of area-wide scope should be addressed through regional agreements.

Drafts of all agreements and contracts for fire protection shall be submitted to regions and, where appropriate, field solicitors for review prior to implementation. The authority to enter into interagency agreements is extensive and found in the Service Manual, and the Departmental Manual, 910 DM.

Multi-agency fire activities may be in one of the three following categories:

Mutual Aid Agreements. The national agreement, which serves as an umbrella for interagency assistance among federal agencies, is the "Interagency Agreement Between the Bureau of Land Management, Bureau of Indian Affairs, National Park Service, Fish and Wildlife Service of the United States Department of the Interior and the Forest Service of the United States Department of Agriculture" (1982). This agreement and other national agreements provide a framework for and grant substantial latitude in the development of regional and local agreements and operating plans.

Besides the national agreement, regional and local cooperative agreements can be developed for mutual-aid assistance. These agreements can be essential and should be a part of the fire management program in each refuge.

Agreements should lead to positive interaction among the participating parties by providing for areas of interaction other than crisis operations and by addressing all potential areas of cooperation and coordination in fire management programs. In addition to the Fish and Wildlife Service contracting requirements in 23 AM 1, they should specifically address the following, as appropriate:

1. Cooperation in prevention, presuppression, suppression, and prescribed fire management operations.

2. Coordination in development and implementation of fire management plans, including fire management strategies, tactics, and methods.

3. Identification of parties responsible for implementing various aspects of the agreement.

4. Resolution of differences in qualification standards for suppression and prescribed fire personnel.

5. Joint training and exercises.

6. Procedures for initial attack, notification, and transition into extended attack.

7. Incident management responsibilities, including unified command within the ICS framework and resolution of command responsibility in particular situations.

8. Special considerations for fire management along administrative boundaries.

Any agreement which obligates federal funds or commits anything of value, must be signed by the appropriate warranted contracting officer. Specifications for funding responsibilities should include billing procedures and schedules for payment. Any agreement that extends beyond a fiscal year must be made subject to the availability of funds. Any transfer of federal property must be in accordance with federal property management regulations. All agreements must undergo periodic joint review and, as appropriate, revision. The best general reference on agreements (except for terminology) is "Partnership for Efficiency Through Cooperative Agreements" by the National Wildfire Coordinating Group.

Mutual aid agreements should be considered as two-way agreements whereby on average as much is given as is gained. As such, they do not contribute to the FIREPRO analysis.

Contracted Protection. Contracts may be used where they are the most cost-effective means for providing fire protection commensurate with established standards. A contract, however, does not absolve a refuge manager of the responsibility for managing a refuge fire program. The refuge's approved Fire Management Plan must define the role of the contractor in the overall program.

Contracts should be developed and administered in accordance with Federal Acquisition Regulations. In particular, a contract should specify conditions for abandonment of a refuge fire in order to respond to a new call elsewhere.

Emergency Assistance. Emergency assistance may be provided by the Fish and Wildlife Service to adjacent jurisdictions upon their request in the absence of any formalized agreements. Some state and local departments, however, will not provide assistance to neighboring jurisdictions without a completed agreement. Even refuges with very infrequent fire occurrence must develop agreements with their neighboring agencies so emergency assistance can be provided and reimbursed.

Guide for Instrument Selection

PURPOSE	FEDERAL ROLE	FEDERAL INVOLVEMENT DURING PERFORMANCE	INSTRUMENT
Acquisition of goods or services for federal use.	Purchaser-user	No substantial involvement except in special circumstances provided in the contract.	Procurement Contact signed by Contracting Officer
Acquisition of goods or services for Cooperator	Purchase-donor	Responsible for assuring performance	Procurement Contract signed by Contracting Officer
Assistance, monetary, or non-monetary to support or stimulate a public objective.	Financial supporter and participant partner	Substantial involvement, as defined by OMB guidance	Cooperative Agreement signed by Contracting Officer
Assistance, monetary to support or stimulate a public objective.	Financial supporter-patron	No substantial involvement, as defined by OMB Guidance	Grant
Mutual assistance relationships with non-Federal entities or individuals. (non-monetary)	Partner	Substantial involvement as required by memorandum	Memorandum or Understanding signed by appropriate official.
Receipt of funds by FWS from non-Federal entity.	Recipient	Substantial involvement as required by memorandum	Memorandum of Agreement signed by appropriate official.

Acquisition from or cooperation with another Federal Agency	Partner or purchaser-user	Substantial involvement as required by agreement	Interagency Agreement signed by Contracting Officer or appropriate official.

1.2 FIRE PROGRAMMING (FIREPRO)

1.2.1 FIREPRO SYSTEM

Organization and Procedures. FIREPRO (Fire Programming) is the system used by the Fish and Wildlife Service to analyze fire suppression program workload and complexity at the refuge, regional, and national levels. Key indicators of workload and complexity are then used to guide the Servicewide allocation of funds from the Department of the Interior firefighting account. Guidelines for managing and tracking these funds are contained in the Financial Management section.

FIREPRO is designed to analyze the staffing and program support needs for all types of presuppression and suppression fire management, including hazard reduction management ignited prescribed fires. In order for FIREPRO to function properly, refuges must maintain **accurate and complete** databases of the indicators for workload and complexity. These indicators include fire occurrence and fire weather records, employee overhead qualification records, values at risk from wildfire, and hazard reduction prescribed fire program complexity.

Fire Management Planning Categories. In order to qualify for FIREPRO funding a refuge must have an approved Fire Management Plan. Once an approved plan is in place, the type of FIREPRO funding for which a refuge may qualify is determined by the refuge's fire management planning category. The planning categories and their criteria are as follows:

1. Category I: Suppression Only. Category I refuges may qualify for FIREPRO funding to support the following program elements:

   a. Permanent staffing
   b. Basic firefighter and overhead training
   c. Seasonal initial attack staffing and support
   d. Fire cache supplies
   e. Accountable equipment procurement
   f. Mechanical removal of hazardous fuels
   g. Personal protective equipment
   h. Approved fairshare activities
   i. Contractual suppression costs

2. Category II: Suppression and Management Ignited Prescribed Fires. Category II refuges may qualify for FIREPRO funding to support the following program elements in addition to those listed for Category I refuges:

   a. Management ignited prescribed fires for hazardous fuels reduction designed to protect resources at risk.
   b. Objective(s) assessment of hazard fuel reduction.

1.2.2 FIREPRO PROGRAMS

For each type of fire management program, FIREPRO analyzes specific program needs.

Initial Attack Preparedness. Presuppression preparedness is based on the philosophy that it is not cost effective to staff a refuge for a worst-case fire season. For most refuges, that level of preparedness would require a suppression force many times larger than that needed to respond to a "normal" fire year Systemwide. Initial attack staffing and support requirements are therefore based on workloads for a normal fire year based on historic records.

1. Normal Fire Year. The normal fire year is defined as the year with the third highest number of wildfires in a ten-year period of record. During a normal fire year, basic initial attack forces are not expected to successfully control all fires burning under fire weather conditions exceeding the 90th percentile of the Burning Index (Staffing Class 4 and 5). Basic initial attack forces may also be insufficient to simultaneously attack the maximum number of starts recorded on a single day during a normal fire year.

   During Staffing Class 4 and 5 periods, a refuge may augment its basic initial attack capability through the use of emergency presuppression funds. The use of these funds is tied to implementation of a Step-Up Plan and controlled by guidelines for managing emergency accounts. Refuges are expected to seek assistance from interagency fire resources in order to manage the initial attack workload during periods exceeding the normal fire year criteria, e.g. during the two years with the highest fire occurrence in a ten-year period.

   The normal wildfire year **does not** include wildfires on private or another agency's land to which a refuge responds through a mutual aid agreement. Since a refuge generally should receive as much assistance as it gives under a mutual aid agreement, there should be no net increase in workload. The normal wildfire year also excludes support actions in which agency firefighters and/or overhead are dispatched to support suppression actions outside a mutual aid area. In order to accommodate special situations, the Fire Management Branch can override the calculated normal wildfire year and add wildfires suppressed on non Fish and Wildlife Service land under contract or through legal or administrative mandate.

2. Fire Season. FIREPRO funding for seasonal firefighters and support is designed to cover needs only during the defined fire season. The FIREPRO analysis calculates a refuge's fire season from a refuge's fire occurrence database. Split fire seasons may occur, e.g., periods with high fire occurrence in the spring and fall months and low fire occurrence in the winter and summer months.

Permanent Staffing:

1. Refuges and Regions should establish a staff of permanent, fire management positions to oversee programs which experience a high number of wildfires and/or that are characterized by a high level of program complexity (various forms of suppression related prescribed fires or high values at risk). The FIREPRO analyses of refuge and regional fire program workloads and complexity are used to determine the appropriate number and types of permanent positions needed in each refuge and regional office. The results of this analysis will be compared with the organization already funded to determine deficiencies or excesses. The staffing analysis will be periodically updated in

order to analyze changing program needs, and the FIREPRO analyses will provide justification for seeking funding to correct future deficiencies.

In order to remain funded by FIREPRO, permanent positions must remain dedicated to fire management a high percentage of the time and fire management duties must have priority over all other duties. The Fire Management Branch will implement this requirement by establishing a benchmark position description for each position type and grade. Positions that vary from these benchmark standards will not be supported by FIREPRO funds.

Fire program management and coordination works most efficiently when all fire management positions work in a unified organization under the direction of a fire management officer.

2. Refuge Position Justifications. Refuges justify positions according to:

   a. Wildfire occurrence during a ten-year analysis period

   b. Values at risk from wildfire

   c. Complexity and area annually burned by management ignited prescribed fire for hazard reduction purposes during a ten-year analysis period

   d. Annual suppression related management ignited prescribed fire targets established in a fire management plan

3. Regional Position Justifications. Regional offices justify positions based on:

   a. Intra-agency and interagency coordination workload

   b. Overall program complexity for refuges within a Region

   c. Direct program oversight workload for those refuges within a region without a refuge fire management officer

Collateral Staffing:

Refuges with low fire occurrence and program complexity that fail to qualify for a permanent FIREPRO-funded fire management officer must designate a collateral-duty FMO so that this level of decision capability will be available. FIREPRO funds can be used for fire protection related salaries, presuppression, hazard fuels reduction, suppression related management ignited prescribed fires, etc.

Hazard Fuels Reduction:

1. Definition. Hazard fuels are defined as those wildland fuels which, when ignited, threaten:

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a. Public safety

b. Structures and facilities

c. Cultural resources

d. Natural resources

e. Natural processes

f. To permit the spread of wildland fires across administrative boundaries except as authorized by agreement.

Fuel accumulation and arrangement may be within the natural range of variability and still be hazardous because of the proximity to values at risk. Under these conditions hazard fuel reduction may need to be a continuous program in order to maintain fuel loads at levels that do not endanger the values at risk in the event of a wildfire. Hazard fuel reduction can also be a one time occurrence to address an unusual situation (i.e., blowdown).

Hazard fuel reduction can be accomplished through mechanical removal and/or prescribed fires. In some cases prescribed fires in very high fuel loads pose excessive risk to the resources being protected and mechanical removal alone or in combination with prescribed fires may be needed.

The objective of hazard fuel reduction is to use proactive actions to reduce overall suppression costs and not for resource enhancement.

2. Project Funding. The reduction of manageable hazard fuels is a high-priority presuppression activity supported by FIREPRO funding analyses. Manageable hazard fuels are those that can be reduced through mechanical removal, management ignited prescribed fires or other means in a cost-efficient manner. A cost-efficient project is one that will significantly reduce fuels for a reasonable length of time. Project costs must also be justified based on the value of the resources or goals at risk from wildfire.

The FIREPRO hazard fuels assessment system allows managers to rank proposed projects according to values at risk from wildfires in hazardous fuel areas, and to evaluate staffing and logistical requirements for carrying out projects. Project funding requests must be submitted through automated data entry programs on the Fire Management Information System (FMIS).

Projects are funded by means of work orders authorized in each budget cycle. Work orders can carry over to new fiscal years and remain open until project completion. Project completion reports and actual information on cost per acre must be entered on the FMIS. Projects from refuges that fail to submit project completion reports for previously funded projects or explanations for why projects have been extended beyond projected completion dates will not be recommended for funding.

Fire Effects Monitoring. Monitoring and evaluation is an essential element of adaptive management. Standards will be developed and implemented along with a process to ensure the collection, analysis and application of high quality fire information needed for sound fire management decisions. Emphasis will be placed on baseline data collection keyed to fire management needs. The refuge system database will contain fire effects information.

All refuges with prescribed fire programs should adopt a plan for monitoring the effects of these fires. These plans usually focus on detecting changes in vegetative communities for several decades. Long-term monitoring is necessary to ensure that the goals and objectives of these programs are being achieved.

Regional offices are encouraged to develop regional fire effects monitoring guidelines that establish minimum acceptable standards for monitoring specific variables. All prescribed fire refuges within a region will be required to adhere to these guidelines. At minimum, regional offices will review and approve monitoring plans developed by individual refuges. Although FIREPRO does not analyze long-term fire effects monitoring needs for the refuges, it may fund them. Only those programs developed at the regional level or refuge programs approved by the regional office are eligible for FIREPRO funding.

Refuges receiving FIREPRO funding for prescribed fires must be conducting regionally approved fire monitoring or have a waiver from the regional office that a monitoring program is not needed.

1.3 FIRE PREVENTION

The intent of this chapter is to provide direction for wildfire prevention efforts, define individual roles and responsibilities, provide a prevention analysis process, and identify special wildfire prevention emphasis programs.

1.3.1 PREVENTION ANALYSIS

The scope, contents and need of the wildfire prevention plan shall be based upon a wildfire prevention analysis. The analysis shall be conducted as follows:

Determination of Risks. Risks are defined as any heat source or human activity that can result in wildfire ignition. Risk assessment is the most important element of the analysis and is the foundation upon which the refuge's fire prevention plan is built.

All potential ignition risks should be plotted on a topographic base map overlay of the refuge. Risks to be plotted shall include all areas of concentrated use and incidents of human caused fires for the past five to ten-year period.

Determination of Hazards. Hazards are defined as the fuels and the topography on which a wildfire will spread.

On a clear overlay of the base map, the areas of fuels and topography that present the greatest resistance to control, such as heavy fuels on steep slopes, should be encircled and labeled as "HIGH HAZARD" areas. Areas which present moderate resistance to control, such as medium concentrations of continuous fuels in less rugged topography, should be encircled and labeled as "MODERATE HAZARD" areas. Everything remaining will be labeled as "LOW HAZARD" areas.

Determination of Values. Values are defined as areas where losses from wildfire would be significant. Since the determination of values is subjective, they will be formulated through an interdisciplinary process.

Values may include Fish and Wildlife Service structures, cultural resources, developments, inholdings, sensitive habitats, endangered species, watersheds, nearby (within 100 feet of the refuge boundary) private structures, and adjacent land.

On a separate overlay of the base map, encircle those areas of high and moderate value as determined by the interdisciplinary team. Label these as "HIGH VALUE" (loss if unacceptable and cannot be easily mitigated) or "MODERATE VALUE" (loss is unacceptable but when mitigated do not affect objective achievement) areas. Everything remaining will be labeled "LOW VALUE".

Assessment of Priorities. Assemble the base map with the overlays. Overlapping areas of concentrated risk, high and moderate hazards, and high and moderate values will indicate the highest priorities for wildfire prevention programs. This assessment provides the foundation for the wildfire prevention plan for the refuge.

1.3.2 PREVENTION PLAN

Overview. The prevention analysis will provide the manager with a tool to determine if a prevention problem exists. The manager will then decide what level of prevention, if any, is required for a refuge. The wildfire prevention plan will be developed and implemented through education, engineering, and enforcement activities and is a component of the Fire Management Plan.

Wildfire prevention programs directed toward fire protection are legitimate FIREPRO funded programs. Programs directed toward the ecological role of fire and the use of fire in resource management must be funded out of the benefiting activity.

The plan should identify fire prevention actions and programs needed to reduce the likelihood of ignitions in areas where wildfire is unacceptable, and should also identify who is responsible for each activity and when each will be accomplished.

Technical direction for development of the wildfire prevention plan will be based upon the NWCG Wildfire Prevention Handbook 4, Chapter 20, Wildfire Prevention Planning.

Plan Implementation.

1. Education. Prevention programs utilize a variety of methods to inform the public of the need for wildfire prevention. The specific activities are intended to create and maintain public and Fish and Wildlife Service awareness, understanding, and support. It should be stressed in all public education efforts that a person causing a wildfire can be held civilly liable for the cost of suppressing the wildfire as well as being charged criminally.

    a. Printed Materials. Printed materials, including general information handouts, site bulletins, and refuge brochures, should include a wildfire prevention message. The use of the Smokey Bear logo should be encouraged in order to emphasize the prevention message. Smokey draws immediate attention to and enhances any wildfire prevention message. The Smokey Bear program has been the historical source of prevention materials. There are several other groups now developing material that will support the prevention program within the Fish and Wildlife Service. The National Wildfire Coordinating Group's (NWCG) Prevention Working Team and the Wildland/Urban Interface Steering Group in conjunction with the National Fire Protection Association (NFPA) have developed material that is available. Some material is available through the National Interagency Fire Center's (NIFC) Publication Management System (PMS).

    b. Media. Media campaigns should be initiated which include show-me tours, photo opportunities, and demonstrations, and solicit support for public assistance in wildfire prevention programs. The refuge should develop public service announcements and media releases for use by all mass media outlets. Where refuge information stations exist, wildfire prevention messages should be included which inform visitors of current fire conditions or visitor use and access restrictions.

c. Signs and Posters. Appropriately located signs and posters with carefully worded prevention messages are effective. Signs and posters at entrance stations provide an excellent opportunity to alert visitors about local wildfire conditions and any restrictions. Technical information concerning types of signs and posters can be obtained in NWCG Fire Prevention Handbook 4, Chapter 40.

d. Visitor Services and Facilities. Wildfire prevention information can be integrated into existing visitor service and interpretive presentations, posted on bulletin boards, and used in temporary exhibits.

e. Personal Contacts. Refuge, cooperating association, and concession staffs play an important role in communicating the wildfire prevention message in all personal contacts.

f. Internal Communications. Refuge personnel and concessionaires shall be aware of wildfire prevention procedures and communicate these to the public. Internal newsletters, bulletin board postings, staff meetings, dispatch morning reports, on-refuge training programs, and tail-gate sessions all provide excellent opportunities to communicate fire prevention messages.

g. Outreach Programs. Wildfire prevention messages should be incorporated into off-site programs presented to schools, civic groups, and other organizations. Fire prevention information can also be presented at on-site workshops, seminars, and other educational programs.

2. Engineering. Wildfire prevention engineering is the process of reducing risks and hazards by shielding or removing heat sources, or by removing fuels.

Prevention engineering includes activities such as moving fuel away from roadways, removing vegetation from around a structure, creating firebreaks around campgrounds, and using spark arresters on internal combustion engines and fireplaces. Prescribed fire can be used to reduce fuels, thereby minimizing the threat of ignition or fire spread.

Technical information on other engineering areas such as power lines, rights-of-way, and industrial activities can be found in NWCG Wildfire Prevention Handbook 4, Chapter 50.

3. Enforcement

a. Visitor Use Regulation. Wildfire prevention enforcement should be practiced at the minimum level necessary to gain compliance with fire laws and regulations.

b. Wildfire Investigations. The inadvertent or intentional ignition of wildland fuels by humans is a crime. All wildfires will be investigated at the earliest possible time. The investigation may range from a documented determination of cause by the initial attack fire crew to criminal investigation by a qualified arson investigator.

The primary job in investigation will be to obtain all the information and evidence possible to identify the responsible party. The initial actions by the fire crew on the fire will affect the investigation's chance for success. Every initial attack fire fighter needs to receive minimal training in finding and protecting the point of origin of wildfire. They must also understand how to protect the point of origin and any possible evidence. Much of this is covered in the Wildfire Cause Determination Handbook of the NWCG.

All violators will be held liable for civil costs and for appropriate criminal action when laws or regulations have been violated.

Cash rewards from appropriated funds are authorized to be paid upon arrest and conviction of known arsonists from suppression funds. The option to offer these rewards must be coordinated through the RFMC and local law enforcement agencies.

c. Public Use Restrictions. The refuge manager has the authority to impose public use and access restrictions in times of high fire danger. These public use restrictions could include:

1) Restricted fire use, i.e., no fires outside developed sites, no fires in back-country, etc.

2) Restriction of public use activities, i.e., off-road vehicles, back-country access, etc.

3) Restriction of refuge operations or contract activities, i.e., construction, blasting, chain saw use, etc.

4) Total or partial closure of the refuge.

d. Coordinating Closures. All closures will be coordinated with adjacent state and Federal land management agencies. Joint agency closures can be very effective and they are easier to manage and better understood by the public when lands of similar hazard, regardless of ownership, are treated the same. All Federal, state, and local organizations responsible for wildfire control should be notified when possible and a coordinated closure or restriction issued.

e. Extreme Fire Hazard Alerts. During periods of extreme fire hazard, special actions may be required to prevent wildfire.

1) Daily Weather Forecast. Request that the National Weather Service cooperate with the wildland fire agencies and issue a special alert for extreme fire conditions with the Daily Weather Forecast.

2) News Media. Provide the news media with a copy of the public alert, closure restriction, or advisory of existing fire conditions.

Wildfire Prevention Plan Format

INTRODUCTION

In order to implement a Wildfire Prevention Plan (WPP) as an integrated element of the fire management program, wildfire prevention programs must be concentrated on identified areas of concern. Wildfire prevention efforts must be directed toward ignitions which pose the greatest potential to cause unacceptable damage or losses. Using wildfire prevention as a strategy based on the threat of the ignition integrates it into the fire management program.

To properly direct wildfire prevention efforts, it is important to accurately identify problems or potential problems. Any wildfire prevention planning process which does not carefully assess or identify wildfire prevention problems is likely to fail. To identify priority wildfire prevention programs, one must look at a number of variables. For the purposes of preparing the WPP variables are categorized as:

1. *Risks - Risks are defined as those uses or human activities which have the potential to result in wildfire ignition. When assessing the risk of a given area, only the RISK should be examined. The potential for a fire to spread or burn will be looked at separately; these two items should not be confused. Wherever there are concentrations of people or activity, the potential for a human-caused ignition exists. After assessing the risks within an area, it may be helpful to look at historical fires to validate the risk assessment. Historical fires alone, however, are not an accurate reflection of the risks within a given area. The objective of this effort is to determine the degree of risk within given areas of an administrative unit.*

2. *Hazards - Hazards are defined as the fuels and topography of an area. The objective in examining hazards is to determine the potential for a large fire to result from a human-caused ignition. This could be more simply put as determining the degree of difficulty in suppressing a fire once it is ignited. It is important to examine hazards without regard for anything else.*

3. *Values - Values are defined as natural or developed areas where loss or destruction by wildfire would be unacceptable.*

Once Risks, Hazards, and Values have been evaluated, it will be possible to determine when, where, and how to implement effective fire prevention programs. By comparing an areas's potential for an ignition (risks) with its potential to burn after ignited (hazards), and the values which are threatened by a wildfire (values), an effective fire prevention plan can be written. This plan should concentrate on the highest priority wildfire prevention problems within an administrative unit. It may not be necessary to have an extensive fire prevention effort in an area with a number of risks where the hazard is minimal and there are no real values threatened. In contrast, it will be important to have a comprehensive effort in an area where there are substantial risks, a high hazard, and high values threatened.

The WPP should address what needs to be done in each area based on the types of activities and uses. It should clearly define what actions will take place, when, and who is responsible.

Wildfire prevention activities generally fall within one of three broad categories. These categories include:

1. *__Education__ - Education is aimed at changing peoples' behavior by informing them. This can be done through printed materials, mass media (radio, T.V., etc.), one-on-one contacts, or group presentations. Information can also be delivered through signs, displays, fairs, parades, etc.*

2. *__Engineering__ - Engineering is an activity designed to shield an ignition source (e.g. spark arrester) or remove the fuel which would ignite from a spark (clearance around a home).*

3. *__Enforcement__ - Enforcement is used to gain compliance with fire codes and ordinances.*

The wildfire prevention plan should select the most cost effective mix of activities to mitigate potential fire problems within each priority area and be evaluated annually. If ignitions are occurring in an area where an active fire prevention program is implemented, perhaps the fire prevention activities should be reviewed and updated.

__NOTE:__ The analysis will become an appendix to the refuge's Fire Management Plan. The prevention chapter should be a summary of objectives and general action items established through the analysis process. The appendix will be the specifics for each identified compartment and action.

OBJECTIVE

The objectivet is to provide direction and guidelines for the following activities:

- *A. Assessing wildfire prevention problems.*

- *B. Establishing realistic, cost-efficient fire prevention goals.*
- *C. Developing wildfire prevention activities focused on unacceptable wildfire ignitions.*

WILDFIRE PREVENTION

Fire prevention traditionally has been viewed as a program striving to eliminate all human-caused wildfires, thereby eliminating or reducing the need for other components of a fire management program. This holistic approach to human-caused fires, while ambitious, is unrealistic and not achievable. The true objective of wildfire prevention is to reduce the likelihood of human-caused wildfire ignitions which could result in unacceptable loss. In order for fire prevention to be viewed as an integrated tool within the fire management program, it must be utilized differently.

This will assist in identifying how fire prevention can be used as an effective management strategy within the over-all fire management program. The key to determining when to use fire *prevention programs is the accurate assessment of the refuge's wildfire problems. In order to assess the wildfire problem, a three step process will be used.*

1. *Analyzing risks (likelihood of a wildfire ignition).*
2. *Analyzing fuels and topography (potential for wildfire to spread and resist suppression actions).*
3. *Assessing values (natural, cultural, political, and developed improvements) which may be threatened by a wildfire.*

This will provide a systematic, step-by-step process to make objective, cost-efficient decisions concerning when and where fire prevention management strategies are applied.

PREPARATION FOR THE ASSESSMENT

Gathering Materials. To conduct the assessment it will be necessary to make some preparations. Materials should include:

1. *4 or 5 topographic maps of the refuge.*
2. *Acetate for 4 overlays.*
3. *Grease pencils or markers in a variety of colors to outline areas on overlays. Black, Green, Blue, and Red are required in the final product.*
4. *Reference materials which include:*
    - a. *Up to 10 years of historical human-caused fire data by location, ignition source and date.*
    - b. *Plans - Fire Management Preparedness and Planning Handbook, operational plans, fire management plans, compendia, interpretive prospectus, etc.*

Building Support. Prior to initiating the development of the prevention chapter, build support for the effort. Inform line officers and supervisors of the objectives of the prevention planning process and obtain their support and advice. This will be crucial to the successful implementation of the program. It is also necessary to use an interdisciplinary approach when you develop your refuge's values. Resource Specialists, Ecologists, Wildlife Specialists, Law Enforcement Specialists, etc, should be included. Arrange a time and place for them to assist in developing resource values and program actions. This will be explained in detail in the section on rating values and developing final compartments.

CONDUCTING THE ASSESSMENTS

The assessment will consist of three distinctly different steps. It is important that each step be conducted independently with no attempt to blend or combine any of them. Each step must be done with a singular focus, and in the order presented.

Through all the steps the ratings of high, medium, or low will be assigned. It is important to keep in mind that these are relative ratings, not absolutes.

Risk Assessment.

1. ***Process:** Assessing Risks consists of evaluating the potential for wildfire ignition. It does not consider how or if a fire will spread or burn once ignited. In this sense, Risk equates to activity or use. Concentrations of use, developments, or activities should be identified. Do not plot or consider historical fires at this point.*

   As the analysis proceeds, a validation of sorts can be accomplished by comparing current concentrations against the historic ignition patterns. If this is done avoid the trap of forcing all compartments into the historic patterns. The flexibility of this planning process is that it permits the manager to anticipate changes in risk due to expected use or demographic changes.

   Factors important to Risk analysis include:

   a. *User activity concentrations*
   b. *Proximity of cause agents*
   c. *Amount of use*
   d. *Identification of who is involved*
   e. *Specification of where the people come from*
   f. *Similarity between activities*

2. ***Action:** On a clear overlay on the base map, circle concentrated use areas in red. Try to keep identified areas broad. Travel corridors, developed areas, recreational use areas, etc, can be encircled in large blocks. Label these areas as high risk. Other areas which have some use, but less than the obviously high areas, should be circled and labeled as medium. All remaining areas will be considered low risk.*

Hazard (Fuel/Topography) Assessment. In fire prevention terminology, the word "hazard" is used to described the relationship between fuels and topography and must not be confused with how hazard is defined in other disciplines. For purposes of this exercise, hazard and fuel/topography are synonymous.

1. ***Process:** The fuel/topography assessment deals with identifying areas of like fire behavior based on fuels and topography. Given a normal fire season, how intense, and at what rate of spread will a wildfire burn? What is its resistance to control? Again, it is important to keep a single focus. Do not confuse this process by considering potential for an ignition or values threatened; concentrate only on how a fire will burn. Under average fire season conditions, fire intensity is largely a product of fuels and topography.*

2. ***Action:*** *Remove the Risk area overlay and place a new overlay over the base map. With a green marker encircle broad areas where fires will burn and will be difficult to stop or control. These should be labeled as high fuel/topography areas. Keep the areas broad; if small pockets of fuels or topography differ from a larger general area, don't be concerned. Include them in the larger area. After encircling areas which present the most significant problems (high), encircle areas of moderate fuels and topography. Again, keep the areas broad. All remaining areas not labeled high or medium will be considered low.*

   Each refuge throughout the country will have different criteria for making distinctions between high, medium and low.

Values Assessment

1. ***Process:*** *Assessing values is a more subjective process. During this process, an interdisciplinary approach must be used. A variety of specialists must be encouraged to participate.*

2. ***Action:*** *With a new overlay, encircle broad areas of value, using a blue marker. Areas of value may include, but are not limited to:*

   a. *Rare and endangered species*
   b. *Wildlife habitat (both game and non-game)*
   c. *Merchantable timber*
   d. *Wilderness, (existing or proposed)*
   e. *Residential/commercial development*
   f. *Developed recreation and associated areas*
   g. *Political values*
   h. *Watershed values*
   i. *Aesthetic values*
   j. *Private inholdings*

   These values should be viewed as areas where wildfire would be unacceptable.

   Individual refuges may have existing inventories of values which have been identified in other planning processes. Areas of obvious value should be labeled high. Other areas which have some value, but are less in relative comparison, should be encircled and labeled as medium. Everything else should be considered Low. Do not be concerned about fire potential, ignition potential, or anything other than values during this process. After values have been identified, consider lumping like value areas which are in close proximity.

Adjusting Risk Areas. Now that the process of developing Risk, Fuel/Topography, and Value areas is complete, it is time to make some adjustments. Plot 5 to 10 years of historical human-caused fires on the base map. (The number of years should be determined by the volume of fire incidents the refuge has experienced over time). Make sure there is a record of cause for each fire. This will be important later in developing specific fire prevention action items.

After plotting fires, place the risk area overlay over the map with the fires plotted. Compare the existing risk areas with historical fire occurrence. There is likely to be some correlation between concentrations of fires and risk areas. If there are fires which do not fall within high or moderate areas consider adjusting the risk boundary to include these fires, if appropriate. If these fires are unusual or isolated occurrences the boundary does not necessarily need to be altered. If a number of fires have occurred within a moderate area, consider upgrading the risk to high.

Some refuges may have limited or no records of historical fires and their specific causes. This is not a problem in developing the analysis. This is because a location that concentrates use (such as a stream with water based recreation or a community/ residential development) may show a collection of "statistical" fire causes (such as campfires or smoker fires), all of which are related to a single activity pattern. A prevention program is more efficient in making contacts and is more likely to succeed if it targets broader categories instead of individual fire causes.

The use of "statistical" fire data is very helpful in adjusting/validating Risk areas and in helping to target specific prevention activities, but not a requirement in the development process. All refuges which do not have good records must begin to gather cause and occurrence data to validate future updates of the prevention plan.

Developing Final Compartments. The information necessary to establish final compartments is now in place. Take all of the overlays and place them on the base map. In order to establish final boundaries, the risk areas will be the primary consideration. Because fire prevention programs usually treat risks, it is logical that the final compartment boundaries be determined primarily by risks.

Take the base map with the risk overlay and place a new overlay on top of them. Trace over the risk areas in black; label them as high, medium, or low according to your original assessment.

After all of the risks have been assigned, remove the original risk overlay and place the fuel/topography overlay on the base map. Put the new overlay which has the risks identified on top. Identify the fuel/topography rating for each compartment in green. Again using the risk areas identified in black, assign a fuel/topography rating to each of either high medium or low. If there are one or more fuel/topography ratings within the final compartment boundaries, assign one fuel/ topography rating which best represents the entire area (interpolate).

Now that each area has been assigned a fuel topography rating, remove the original fuel/topography overlay. Place the value overlay on the base map and place the new overlay on top. Each compartment will now receive a value rating of high, medium, or low. If one or more values exists within the final compartment boundaries, it will be necessary to interpolate. Assign the value which best represents the entire area; label it in blue. The new overlay will now represent your final compartments with respective ratings. Examine the compartments and their ratings, to ensure they generally reflect reality.

Documentation. The final step in conducting the fire prevention assessment will be to document the findings. These will be important in developing the fire prevention plan. The documentation should be brief and to the point. It will be necessary to list each compartment, zone or, area with an assigned number or geographic name and a brief description of the ratings.

Example: Compartment 1 - Oak Creek

Risk - High -	*Concentrated use in the area around Oak Creek. History of escaped campfires, smoker fires.*
Fuel/Topography - Moderate -	*Oak and hardwoods with fine flashing fuels on mild to moderate slopes.*
Value - High -	*Recreational developments (campgrounds along creek) riparian area adjacent to creek.*

After each compartment has been documented and the rationale for the ratings described, develop the prevention plan.

DEVELOPING THE FIRE PREVENTION PLAN

The fire prevention plan will consist of describing appropriate fire prevention actions for each compartment. Priorities should be determined by the previous assessments. If a compartment has a high Risk rating (high potential for an ignition), high Fuel/Topography rating (fire will spread and be difficult to suppress) and high Value, it will obviously be a priority for fire prevention actions. In contrast, a compartment with all low ratings may not call for any prevention efforts. If a wildfire will not result in appreciable damage, it may be prudent to invest prevention resources in areas where a wildfire will threaten higher values and would be more difficult to suppress.

Each compartment will require its own assessment when developing fire prevention plans. Actions should be commensurate with the relative ratings of each compartment. For the example compartment, fire prevention actions might look something like this:

> *Compartment 1 - Oak Creek - Prevention actions - Place signs at entrance to campgrounds on safe campfire use and smoking. Make weekend patrols of high use areas along the creek. Assure that fire prevention messages concerning smoking and campfire use are incorporated into visitor information handouts.*

After developing appropriate fire prevention actions for each compartment, it will be time to complete the final plan. If there are fire prevention actions which apply to the total unit, these should be listed as general fire prevention actions and listed first. These might include developing new handouts, assuring power lines are inspected and in firesafe conditions, assuring off-road vehicles are equipped with approved spark arresters, etc. The remainder of the plan will consist of the actions (in priority) for each compartment. Be sure the plan identifies who will be responsible for the actions identified and when they should occur.

THE PREVENTION CHAPTER OF THE REFUGE FIRE MANAGEMENT PLAN

This fire prevention analysis should become an appendix to the refuge's Fire Management Plan. The prevention chapter in the FMP should be a brief summary of objectives and general action items established through this analysis process.

The following is an example chapter in the recommended format for the Fire Management Plan. This chapter can be more detailed for larger refuges or heavily used areas or very general. The bulk of the analysis will be displayed in the appendix.

PREVENTION CHAPTER OF THE REFUGE FIRE MANAGEMENT PLAN (Example)

Objectives

To reduce the threat of human caused fires through visitor and employee education.

To integrate the prevention message into interpretive programs.

General Actions

All members of the refuge staff will be familiar with this plan and be able to explain it to other interested parties.

Fire prevention will be discussed at each refuge safety meeting.

Smoking will be prohibited on all refuge trails when fire danger is very high or extreme. Signs will be placed to notify the public at all entrances and trailheads.

Interpretive programs will include fire prevention messages to alert the visitors concerning current fire conditions.

Fire Prevention Analysis

The fire prevention analysis is attached to this plan as an appendix. This appendix contains the detailed prevention actions identified for specific areas or fire problems in the refuge. It will be reviewed annually and updated if changes occur which alter the identified RISKS, HAZARDS, or VALUES.

EVALUATION

The fire prevention plan should be reviewed annually as stated in the prevention chapter. If human caused ignitions are occurring in new areas or increasing in identified priority areas, it may be time to change the prevention strategy. The evaluation should concentrate on areas where specific problems are occurring rather than changing the entire plan. If the plan is working there is no need to make changes.

As new recreational sites are developed or use and values change, the plan must be reviewed to determine if new actions are required, and the decisions made will be documented in that year's prevention plan.

EXAMPLE FIRE PREVENTION ANALYSIS

STEP #1

The first step is to develop a good base map. A map of 1:62500 is recommended, however any scale can be used as long as major features pertinent to the planning process (such as campgrounds, road corridors, trails, recreation sites, developments, or other RISK/HAZARD/VALUES) can be clearly located. Do not use maps with zones from other planning processes (such as fire management zones).

STEP #2

The first overlay is the identified risk areas. Delineate broad zones, getting too specific only muddies the water at this point. Make sure each area is clearly marked with the appropriate rating and that it is drawn in RED.

This inventory identifies the causal agents and user activities with the potential to cause ignitions.

Examples of risks:

1. *Water use areas*
2. *Camping areas (established or dispersed)*
3. *Transportation systems*
4. *Powerlines*
5. *Residential/commercial uses*
6. *Trails*
7. *Inholdings*
8. *Agricultural use*
9. *Interpretive sites*

Identified risks are not necessarily equal in their potential for causing ignitions. For that reason it is necessary to establish priorities so that, when a risk level is set for each risk area there is sufficient rationale for the decision.

The following criteria could be set for risk rating.

HIGH = concentrations of camping, high use trails residential/commercial areas

MEDIUM = dispersed camping, lesser used trails

LOW = little recreation or visitor use

Analyze all the factors. Then create the risk areas, plot them on the first overlay, and rate the areas in relation to each other as high, medium, or low risk. Note: Transportation corridors are not necessarily high or medium risk by themselves but their travel destinations may be.

STEP #3

The next task is to identify hazards (fuel/topography) on the second overlay. Hazard rating criteria, based on combinations of slope and fuel type must be agreed upon. For instance:

HIGH = brush fuels on 30 to 100%+ slopes

MEDIUM = grass fuels on 0 to 100%+ slopes, or brush on 0 to 30% slopes

LOW = timber on 0 to 100%+ slopes

Remember to set these rating on the degree of difficulty in suppressing a fire should it occur in a given fuel/slope area. Outline and rate the hazard areas on the Hazard overlay in GREEN. This can be accomplished by comparing slope class to fuel type and then gaming each variation. As this process is followed, it is necessary to use broad generalizations or the variations become too numerous to rate into three levels.

If fire management analysis zones have been developed during other planning work and they are based on fuel/topography these may be used for the Hazard overlay. In any case the units need to be evaluated in relation to all other units for rating the level of hazard.

STEP #4 (a+b)

On this third overlay value areas will be defined. This effort must be interdisciplinary. As in the previous overlays keep the areas broad and always rate them in relation to each other. Plot areas and ratings in BLUE.

In the example, general areas of consistent value were identified during a meeting between various staff specialists. All values were considered such as developments, watershed, cultural, aesthetic, soils, wildlife, plants and political considerations. Rating criteria was established as in the previous overlays and can be documented as the following:

HIGH = developed areas, established camp sites, rare plant occurrence, political

MEDIUM = dispersed camp sites, backcountry cabins

LOW = little recreation use, fire poses no threat to plant or animal values

At first many small areas were identified on a draft overlay, then working together the staff interpolated the values in broader areas to develop the final Value compartments. The key again is to think in general overall terms.

STEP #5

At this point in the analysis it is helpful to look at the historical human-caused fire occurrence. The historical fires can be plotted on the base map, on a new overlay or on a separate occurrence map. Plot the fire in numerical sequence with an index attached.

Remember that the comparison of historical fires to the unit's risk areas is for verification and minor adjustments. There can be high risk areas with little or no recorded fires. That is why the comparison is done after the risk, hazard, and values have been determined. This preserves the broad picture and allows for flexibility in anticipating future patterns.

Knowing the specific causes of the historical ignitions will assist in the development of targeted actions for the final established compartments. Plotting future ignitions can also indicate a need to review or modify the prevention efforts as change occurs.

STEP #6

The three overlays are now integrated into one overlay or map of the whole refuge. The original risk area boundaries can be used for the final compartment, but as in the example other compartments can be designated to meet unique conditions. The process, however, must still remain fairly general.

Each final compartment must be identified by a name and a number and given a rating for risk, hazard, and value. For instance Unit # 1 may be given a LLL meaning low risk, low hazard, and low value. A narrative must be written for each compartment, describing the factors that made up the ratings. Additionally a prevention prescription must be written describing the specific prevention action to be taken and by whom. As in this example, refuges can write general actions that cover all compartments and only mention specific actions for an individual compartment, should that compartment have a unique prevention problem.

Now with all the compartments rated comparisons can be made on priority actions. Managers can immediately see that the analysis shows zones with a HHH rating should receive priority over zones which rated out LLL.

1.3.3 EMPHASIS PROGRAMS

Special emphasis programs are new or on-going programs which can be instituted at all organizational levels. These would include:

Cooperative Forest Fire Prevention (CFFP)/Smokey Bear Program. Full details on all facets of the Smokey Bear Program can be found in NWCG Handbook 4, Chapter 40.

Wildland-Urban Interface. The wildland-urban interface is an increasing national problem affecting all agencies. The encroachment of structures and developments into rural areas has made fire suppression and fire prevention activities much more complex. Prevention activities that can be effective in urban interface areas include:

1. Fuels Modification. It is recommended that flammable vegetation be cleared for 30 feet around structures (including Fish and Wildlife Service owned structures), but clearance requirements may be greater in areas where slopes and heavy fuels are involved. Woodpiles and other flammable materials should be stored away from the structure.

2. Construction Materials. Structures with wood roofs and sidings are much more vulnerable to wildfire ignition. Developers and homeowners should be encouraged to install non-combustible roof materials when possible.

3. Roofs and Chimneys. Chimneys should be equipped with spark arresters of no more than 1/2" non-combustible screens. Roofs should be kept clear of leaves and needles.

4. Access. Access roads to structures should be cleared sufficiently to allow fire trucks safe access and exit. It is always desirable to have two separate routes of access.

5. Water. A good water supply is critical. In areas where water flow is low, an auxiliary water tank with pump may be necessary.

6. Open Flame Sources. Incinerators, barbecues, welders, and similar open flame sources should have sufficient clearances from flammable vegetation. A hose and shovel should be kept nearby when burning is underway.

Volunteers In Wildfire Prevention. Volunteers can be utilized in wildfire prevention in compliance with Fish and Wildlife Service guidelines on the use of volunteers in refuges.

1.3.4 PREVENTION TRAINING, POSITIONS AND FUNDING

All Fish and Wildlife Service personnel have wildfire prevention responsibilities. To insure employees have a basic understanding of wildfire prevention, all Fish and Wildlife Service employees should complete Introduction to Wildfire Prevention. This basic course is available for purchase through the NIFC Publication Management System.

The refuge should also work with their local cooperators to develop effective wildfire prevention training programs for the mutual benefit of both.

Upon completion of the Prevention Planning process and its approval and addition to the Fire Management Plan, positions or funding may be justified to achieve identified and realistic goals. Any request from FIREPRO funding will only be considered when the approved Fire Management Plan documents the need.

1.3.5 INTERAGENCY COOPERATION

Interagency cooperation is critical at all levels. Wildfire prevention programs can be much more effective when resources and programs are coordinated and shared among agencies. Careful coordination is needed so that programs are complimentary and reinforce, rather than contradict, each other.

Cooperative wildfire prevention programs should include the institution of interagency committees, the development of interagency public education programs, and the development and coordinated release of news stories to the media.

The promotion of wildfire prevention should be strongly considered. Cooperative efforts in wildfire prevention activities with other local fire authorities provide an excellent avenue for establishing cordial relationships which pay dividends at the time of an emergency.

1.4 PLANNING

1.4.1 FIRE MANAGEMENT PLANNING

Without management plans derived from an orderly planning process, fire management would be no more than a series of uncoordinated reactions to immediate problems. Through planning, managers can reconcile differences in management philosophy and ideas before taking actions that have long range resource effects. Good plans have a stabilizing influence on management, despite changes in personnel or multiple administrative influences. Plans that establish clear, attainable, measurable, and acceptable objectives for an area, and policies and actions by which such objectives are pursued, are essential for guiding fire management toward consistent outcomes.

In the future, successful fire management will depend on the quality of plans that guide management actions for individual areas. In an era of heightened concern about cost effectiveness and competition for scarce funds, the potential for obtaining the personnel and money essential for fire management will be increased by plans that identify clear objectives, effective management actions, and adequate monitoring processes.

Public involvement in the planning process will give the interested public an opportunity to learn about, evaluate, provide input, and become involved in a refuge's fire management program. Effectiveness and consistency of fire management, as well as the public's acceptance of that management and its implementation, are highly dependent on plans and the planning process.

The fire management program for the Fish and Wildlife Service is an integrated and complex program combining interagency obligations, national and regional coordination, refuge operations, and resource management. An integrated planning process is needed to provide direction, guidance, justification, and decision support.

A cyclic-incremental planning system provides the flexibility needed to address the diversity of situations within the System. Planning therefore occurs at the level of need and plans produced by those who will be conducting the operation and emphasize local experience. Plans will be reviewed and approved by appropriate individuals for technical, policy, and fiscal accuracy and feasibility.

Regional Plans

The Regional Fire Management Coordinators within each regional office are responsible for coordinating the fire management program of the Fish and Wildlife Service within the region. To accomplish this requires several plans:

1. Regional Fire Dispatch Plan

2. Regional Preparedness Plan

3. Regional Mobilization Plan

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Refuge Plans

Each individual refuge of the Fish and Wildlife Service is responsible for implementation and evaluation of the fire programs at that station. These programs can range from simple to complex. The level of complexity will dictate the level of fire planning.

All refuges with vegetation that can sustain fire must have a Fire Management Plan. Regional Directors may waive this requirement. Other fire management plans may be necessary to fully implement the Fire Management Plan. These may included one or more of the following and/or include other plans the refuge feels appropriate to its needs:

1. Prescribed Fire Plan
2. Dispatch Plan
3. Step-up Plan
4. Wildfire Prevention Plan
5. Pre-attack Plan
6. Fire Rehabilitation Plan
7. Monitoring Plan
8. Refuge Preparedness Plan

NEPA Compliance

As required by National Environmental Policy Act, the Fish and Wildlife Service has adopted procedures for assessing environmental effects of specific Service actions. For actions not categorically excluded, an Environmental Assessment (EA), and if necessary an Environmental Impact Statement (EIS), is prepared before making any land use decision, including fire management actions. See the U. S. Fish and Wildlife Service NEPA Handbook, or consult with the Regional Environmental (NEPA) Coordinator for details on the NEPA process.

The NEPA process can be either for programmatic or individual actions, but individual actions must consider cumulative effects. A programmatic EA may be preferable to individual EAs for each proposed prescribed burn and fuel reduction treatment.

Fire management actions (either initiating a new action or changing an existing action) may have been adequately covered under existing NEPA documents (i.e., refuge comprehensive planning, etc.), and no further NEPA action is required. For the NEPA analysis to adequately cover fire management actions, the magnitude of the action and site specific information and environmental effects are needed. This may include acreage, location, timing of operations, habitat types affected, emissions produced, environmental effects, etc.

If fire management actions are not adequately addressed elsewhere, a decision needs to be made whether the action is categorically excluded, requires an EA or EIS. Departmental Categorical Exclusions are listed in 516 DM 2 Appendix 1 (wildfire suppression actions are catagorically excluded). These are actions which do not individually or cumulatively have a significant affect on the environment. An EA is used to determine whether there are significant affects. An EIS is prepared for major federal actions with significant effects. Whether a specific fire management action is covered by a categorical exclusion, or requires an EA or EIS, depends not only on the action, but also the context of the action. This decision is best made at the field level. For example, increasing prescribed burning by 200 acres a year on a rural Southeastern refuge where surrounding land owners are also burning may have no or minor potential environmental impacts. Initiating a 10 acre prescribed burn within the watershed of an endangered fish on a California refuge up wind from a Class 1 airshed probably requires an EA.

The Fire Management Plan must clearly state that an environmental analysis has been completed and include any constraints or limitations imposed on the fire management program. Compliance requirements which may be included in the analysis are Section 106 of the National Historic Preservation Act of 1966, Section 7 of the Endangered Species Act (as amended in 1973), and Section 810 of the Alaska National Interest Land Conservation Act of 1980. Additional compliance requirements may exist at the federal, state and local level. These documents must be available for reference.

Public Involvement

Public involvement is an integral part of the planning process and should be commensurate with the level of public concern.

Planning. One of the objectives of 910 DM 1 is "To prepare and implement comprehensive and coordinated fire management plans that are based on sound ecological principles, **and which have been subject to full public participation and input"**. Public participation is especially important for controversial issues. The public must have an opportunity to help formulate plans if these plans are to have credibility and acceptance. Plans not supported by the public will be difficult to implement.

Involving the public is an accepted part of the decision-making process. The public is a source of ideas, a sounding board for the acceptability of proposed management direction and policy, and a potential partner in its formation and implementation. Studies of public participation in resource decision making indicate that managers who hesitate to involve the public are often those who have not tried it or who doomed their public involvement efforts to failure by their own anxiety or negative attitude about it. Most managers who have successfully used public involvement are impressed with its helpfulness in making better and more acceptable decisions. Many Fish and Wildlife Service customers are affected by fire management decisions: state and local fire management agencies and organizations, hunters, fishermen, hikers, photographers, conservation groups, commodity interests etc.

Many different strategies may be successful for securing public involvement. Strategies employed for other land use decisions will probably be successful for fire management. Both managers and the public must be prepared for the amount of time required to get public input, incorporate it into new draft plans, and then get responses to the revisions. This time should be anticipated in the planning process.

Public Information. Public awareness of fire operations is very important in accomplishing management objectives. Keeping the local media informed and educating the public concerning fire-related operations is equally important in prescribed fire and wildfire incidents. Involving cooperators, citizen groups, media, and local agencies can provide positive needed support in all aspects of fire management.

Information dissemination concerning small wildfires and prescribed burn operations can be coordinated by the refuge staff. The refuge staff should have established a working relationship with local organizations and identified key persons, thus making this phase of communications relatively simple. As prescribed burning becomes more complicated or a wildfire incident becomes larger, impacting more people, a qualified information officer may be needed to coordinate information needs with local, regional, National, or Congressional interests.

Information and Interpretation planning. Approved fire management plans will include an information and interpretation program which will provide for the timely and accurate communication of:

1. The specific fire management objectives of the Fish and Wildlife Service and the refuge.

2. Information on fire location, behavior, growth.

3. Information on the effects of fire.

4. Fire management actions taken on a fire.

5. Fire impacts, on and off the refuge, on public and private facilities and services.

6. Restrictions and closures within the refuge.

7. Commitment of refuge personnel and equipment to out-of-refuge fire management assignments and the effects on visitor services of those support actions.

8. A "step-up plan" addressing all aspects of a refuge's fire management program, including:

   a. Minimum public and media contact requirements (refuge residents, concessionaires, neighbors, cooperators, inholders).

   b. Program management responsibility.

   c. Provisions for increased interpretive and information programs commensurate with increased fire activity or fire danger.

d. Information on the natural role of fire, the refuges's efforts to restore natural fire to refuge ecosystems, or other discussions of the benefits of fire will not be mixed with information on the status of wildfires.

Evaluation

Professional fire management requires base data and monitoring just as much as managing wildlife populations, habitat, or any other type of resource. Much past fire management has been based on the manager's personal experiences, opinions, and intuition (subjective data) rather than on systematically collected information (objective data). Professional judgement must always be a part of fire management; but judgement should be based on reliable information about fire's effects on other resources and probable responses of the ecosystem to management decisions.

Subjective data may not provide the level of confidence needed by both the resource manager and his/her customer. Objective data may be the only type that is acceptable to support professional fire management decisions. "In God we trust. All others must use data." (W. Edwards Deming) Objective data must meet four general standards; the data must be:

1. Systematic refers to planned, standardized way of collecting and handling data, including a schedule for data collection. It is opposite of casual, catch-as-catch-can measurements (ocular recon or windshield surveys).

2. Valid data measures what is actually intended, not something that may be more convenient but which is only loosely linked to the real objective.

3. Reliable data will vary little no matter who collects them. Objective, measurable units are more likely to be reliable than subjective ratings.

4. Accurate data reflect the same qualities essential for a systematic, reliable approach, plus sample size. Measuring only one fire every five years, would yield fire effects information with very low accuracy. Measuring every fire every year would be extremely accurate but very expensive.

Data should be measured and recorded for specific, individual parameters, rather than a combination of parameters. Individual measures identify specific fire effects, help suggest appropriate corrective actions, and can always be combined in one or more ways to form combined parameters.

Collecting fire management data is costly, and the benefits of better information must be compared to these costs. Poor decisions based on inadequate information also can be costly and can result in irreversible resource changes. Manager's must also guard against collecting data for information's sake. The level of data collection is in part based on the amount of confidence that both the resource manager and his/her customers require. Frequently that level of confidence required by each is very different.

Complete, precise information at an acceptable cost, geared to important management needs, is the goal. Adequate basic data about fire use and its different effects are the essential first step to improved management. Management objectives establishes the types of information that will be essential for management. This information is needed to develop management plans and actions, to monitor the effects of fire, and to revise plans. Without this information the refuge manager cannot tell whether management is achieving its objectives and can learn little from experience. Employee turnover and the use of untrained volunteers compounds the uncertainty.

The development of a monitoring plan that specifies the systematic methods of data collection is frequently necessary and assures continuity. This plan may be specific to fire management or included in the refuge Wildlife and Wildlife Habitat Inventory Plan. Monitoring certain presuppression and suppression oriented parameters can be funded with FIREPRO funds, but only if an approved monitoring plan is developed.

Planning Review

To provide the necessary planning oversight a formal plan review process is required. Plans generated by one level are reviewed by the next higher level. The review level is responsible for establishing the formal process (e.g., all refuge fire management plans are reviewed and approved by their regional office). Each regional office will establish a formal review process: who provides biological, technical, policy, fiscal review and how that review takes place. Normally, at a minimum, Fire Management Plans (FMPs) will be reviewed by the Regional Fire Management Coordinator for concurrence and approved by the Regional Director. Operational supports plans, e.g. Dispatch, Prevention, Stepup, Prevention, Monitoring, etc., will be reviewed annually to determine if updates are required. Updates to existing plants that are significant in nature should be submitted to the Regional Office. The Fire Management Branch will periodically review the regional review process and approved refuge fire management plans for policy compliance and regional performance.

1.4.2 FIRE MANAGEMENT PLAN

Introduction

The procedures for developing fire management plans and an outline of the contents are found in this section. A discussion of some of the individual subjects will be found in other identified sections of these guidelines.

All refuges with vegetation that can sustain fire must have a Fire Management Plan. The Regional Director can waive this requirement. The resource management objectives of the refuge may determine whether a prescribed fire component is needed. The activities covered by the Fire Management Plan will be given due consideration with other refuge management activities and an inter-disciplinary team approach is recommended in its development. When fire management plans include a prescribed fire component, compliance with the National Environmental Policy Act will be required. At a minimum an Environment Assessment is required unless the fire program has been adequately addressed by the refuge's Comprehensive Management Plan EA or EIS.

Fire Management Plan

Fire management plans must be guided by the overall resource management objectives for a refuge. The fire management plans must relate to the refuge Comprehensive Management Plan and individual operational plans (i.e., Marsh and Water Management Plan, Forest Management Plan and Grassland Management Plan) and help achieve resource management objectives.

Refuges without up to date resource management operational plans will have difficulty developing a comprehensive fire management plan (i.e., new refuges, refuges which have postponed planning, or refuges with obsolete plans). Unfortunately fire management obligations begin as soon as the Fish and Wildlife Service takes title to lands and cannot be postponed. In many cases a Fire Management Plan is needed before any resource management operational plan can be developed or updated. Under these conditions the best fire management planning strategy can best be achieved by addressing the components of fire management one step at a time.

For example, a new refuge would develop an initial Fire Management Plan that covers only the basic suppression obligations. After a couple of years of gathering resource information, the plan would be updated to include presuppression activities. Only after sufficient resource management operational planning has been completed, would the Fire Management Plan be update to include all aspects of the fire management.

The following provides guidance toward the step wise planning strategy.

Step 1 - Wildfire suppression

In many cases the most efficient method of meeting the suppression obligation is by contract or agreement with a preexisting wildland fire suppression agency or organization. This could be a federal, state or local governmental agency responsible for wildland fire protection and control in the area. Developing a self contained refuge initial attack capability is also a legitimate alternative. However, the appropriate strategy will be the most cost effective alterative.

Step 2 - Presuppression and hazard reduction

If the refuge values at risk may be compromised by not addressing excessive fuel loads, then presuppression actions are warranted and must be addressed, but only after a careful analysis of the values at risk. Other refuge operational plans can usually provide useful information for the analysis. If these have not been developed, acquisition documents may provide adequate information for the analysis.

In analyzing the situation, consideration should be given to the immediate need (why postponing the proposed presuppression action would not be prudent until other operational plans are developed or necessary information is obtained), and the costs of the presuppression action vs. the benefits of protecting the values at risk. The decision on conducting a hazard reduction operation is an economic decision (i.e., it is the least costly strategy to protect the resources at risk). If the reason for the hazard reduction operation is resource enhancement not resource protection, then it is a resource enhancement project and should be addressed accordingly.

Fuel loadings are considered excessive if the fuel loads are such that available suppression forces cannot protect the values at risk in the event of a normal wildfire. Whether increasing initial attach suppression resources or conduction presuppression hazard reduction operations depends on which is the most cost effective operation.

Step 3 - Resource enhancement prescribed fire

In most cases resource enhancement prescribed fires will not be addressed until supporting resource management operational plans exist. The justification, objectives and direction for resource enhancement prescribed fire are derived from refuge resource management operational plans (Forest Management Plan, Marsh and Water Management Plan, Grazing Plan, etc.). It would be more prudent to first develop or update the appropriate resource management operational plans before planning a resource management prescribed fire program. The resource enhancement prescribed fire program is usually the last component of a comprehensive Fire Management Plan.

Fire management plans will be approved by the Regional Director or his/her designee after review by those formally identified by each region for policy compliance and for biological, technical and operational soundness. Amendments to fire management plans must undergo the same review. A copy of the approved Fire Management Plan and all subsequent Fire Management Plan amendments will be provided to the Fire Management Branch (supporting operational plans need not be included).

Fire management plans are written to be understood and carried out by the refuge staff. They are operational plans and should be easy to use and readily accessible. Supporting information located elsewhere should be summarized or referenced. Refuges should formally review the Fire Management Plan every three years.

Accepted Outline for Fire Management Plan

** Those components with an asterisk(*) are required only for plans which include prescribed fire components.*

i. TABLE OF CONTENTS

ii. LIST OF FIGURES

iii. LIST OF TABLES

I. INTRODUCTION

A. State that the plan will help achieve resource management objectives as defined in the refuge Comprehensive Management Plan and other established operational plans.

B. State that the plan meets NEPA/NHPA compliance and provide explanation.

C. State the reasons for developing this plan, including the requirement that all areas with vegetation capable of sustaining fire will develop a Fire Management Plan.

D. Cite authorities for implementing this plan.

II. COMPLIANCE WITH FISH AND WILDLIFE SERVICE POLICY

A. Relate the plan to the enabling legislation and the purpose of the refuge.

1. Why was the refuge established?

2. What values are to be protected? Describe cultural and historical sites, T&E species, critical habitats, refuge facilities, private property that may be threatened from a fire on refuge property in general terms.

B. State the objectives of the refuge's Master or Management Plan as they pertain to the Fire Management Plan. If no Master or Management Plan exists, so state.

C. State the objectives of the refuge's operational plan (Marsh and Water Management Plan, Forest Management Plan, Grassland Management Plan, etc.) as they pertain to the Fire Management Plan.

D. Follow with a paragraph telling how the Fire Management Plan will help meet these objectives.

**1. Example: "Fire is a critical ecological process in the management of the red-cockaded woodpecker populations and habitats ..."*

2. State that the plan is a detailed program of action to implement fire management policies and objectives.

E. Provide reference to sections of the Master or Management Plan which direct the refuge to manage fire.

III. DESCRIPTION OF REFUGE

A. Briefly describe the refuge area; values protected, managed or at risk; adjacent landowners and agencies. This is a narrative description about the refuge including such topics as topography, climate, vegetation, wildlife resources, water resources, threatened and endangered species, cultural resources, air *resources, soils, facilities, social-political-economic attributes, current land uses, etc. Describe the value placed each (intrinsic: e.g., the loss of individuals from a subpopulation or population is acceptable, but the loss of an entire subpopulation is not acceptable, or monetary: e.g., the refuge headquarters $ 2 million). (Summarize and reference extensive descriptions of the refuge environment that exist in other documents.)*

B. *Briefly provide general fire information on the refuge.*

   1. *Historical/ecological role of fire*

   2. *Refuge fire history*

   3. *Fire frequency and behavior*

   4. *Fire effects*

      a. *Vegetation and fuels*

      b. *Wildlife*

      c. *Air quality*

      d. *Soils*

IV. REFUGE FIRE MANAGEMENT OBJECTIVES

A. *State the broad fire management objectives of the refuge. This should be brief; each will be expanded in the wildfire, management ignited prescribed fire and prescribed natural fire program sections. For example:*

   1. *Protect life, property, and other resources from unwanted fire.*

   2. *Use fire to accomplish resource management objectives.*

   3. *Restore fire as a natural ecological process.*

   4. *Develop and implement a process to ensure the collection, analysis and application of high quality fire management information needed for sound management decisions.*

   5. *See II.B. for other relevant objectives.*

B. *List the refuge's specific fire management objectives as subcomponents of the broad objectives. For example:*

1. *Protect from fire important scientific, cultural, historic and prehistoric, and scenic resources, all retained use and occupancy sites, private lands, and key visitor and administrative facilities.*

2. *Restore and perpetuate native wildlife species, by maintaining a diversity of plant communities.*

3. *Maintain natural fire as a dynamic ecosystem process to the maximum extent feasible.*

4. *Remove ladder fuels through successive low intensity management ignited understory burning until fuel loads represent natural levels then implement a prescribed natural fire program.*

V. FIRE MANAGEMENT STRATEGIES

A. *Describe the overall approach selected to achieve fire management objectives. Discuss specific strategies selected to implement the program. This should include confine, contain, and control suppression, presuppression, and resource enhancement prescribed fire strategies. For example:*

   1. *All wildfires will be controlled.*

   2. *Hazard reduction prescribed fires will be used in fire adapted communities that have not had a significant fire for more than twice the normal fire frequency for that community type.*

B. *Describe general refuge-wide constraints on strategy options. Constraints related to wilderness or proposed wilderness; endangered species; cultural resources; and the like. For example:*

   1. *No use of retardant in areas under consideration for wilderness except in life-threatening situations without the express approval of the refuge manager.*

   2. *No use of bulldozers in cultural areas without the area first being examined by the regional or refuge archeologist.*

C. *Discuss why each strategy was selected.*

   1. *Justification for protection (suppression and presuppression) strategies should be based on cost effectiveness of protecting the values at risk. Two conditions must be met:*

      a. *The cost of strategy implementation must be less than the value of the resource being protected.*

b. The cost of strategy implementation must be the least costly plus loss alternative.

2. Justification for resource enhancement strategies should be based on cost effectiveness of achieving the resource management objectives identified in refuge planning documents.

VI. FIRE MANAGEMENT UNITS (FMU's)

FMU are areas in a refuge where there are common fire management strategies, fuels, etc. These are not treatment units. In many smaller refuges the whole refuge can be treated as a single FMU. A FMU may even contain two or more separated portion of a refuge if the fire management strategies are similar.

A. Discuss and delineate (including maps) FMU's by:

1. Suppression zones and strategy (confine, contain or control).

**2. Prescribed natural fire zones.*

**3. Any conditional FMU's (e.g. a combination of the above, areas with more restricted prescriptions, suppression activity restrictions, etc.). These are area where suppression actions will be used under certain condition or where prescribed natural fire will be used under other conditions. Or where different suppression strategies are used depending on certain conditions (i.e., fire in all confine and contain units will be controlled when visitor use exceeds 2000 visitors per day).*

B. For each FMU discuss the following:

1. Relationship of FMU to refuge objectives covering suppression.

2. Recent and pre-aggressive fire suppression fire history.

3. Fuel types (FBPS and NFDRS). Identify important or indicator species that are benefitted or harmed by fire.

4. Fire behavior by fuel types in each of "normal", and "extreme" fire years. (Normal and extreme should be defined by 100 or 1000 hour time lag fuel moistures, BI, ERC, Keetch-Byram drought index, etc.)

**5. Fire effects by fuel types under various conditions of fuels, weather, soil and other influential variables.*

6. Annual fire weather cycle, including extremes.

VII. FIRE MANAGEMENT AND RESPONSIBILITIES

**A. Describe composition of a station or complex fire management team and their responsibilities for both suppression and prescribed fire.*

**B. List members of the fire management team (suppression and/or prescribed fire) by name, position and qualifications (both wildfire and prescribed fire qualifications).*

**C. State who is responsible for daily application of the decision criteria and validation of prescribed fire or prescribed natural fire determination as appropriate.*

D. Describe interagency coordination.

1. List key interagency contacts by function. (The contact name, location, alternate persons, telephone numbers for inter and intra-agency activities should be in descending order of contact priority and included in the Dispatch Plan.)

2. Describe/list all fire-related agreements (all referenced agreements will be included in Appendix __).

VIII. WILDFIRE PROGRAM

A. Fire prevention (see Fire Prevention).

B. Fire Season (see FIREPRO Analysis and Presuppression

C. Describe the range of potential fire behavior as it relates to fire protection and prevention by fuel types, historic weather patterns, drought etc. Include where appropriate flame length, rate of spread, burning index, energy release component; by month and season.

D. Presuppression (see Presuppression).

1. Identify needed training activities.

2. Describe the work needed annually to ensure the fire readiness of equipment and supplies. Detail when cache equipment is readied, who does it, what firebreaks are to be put in, including a description of the type of firebreak to be used etc.

3. Describe added patrols and activities to enhance detection as fire danger increases. Describe these in detail in the Step-up Plan.

4. Effect of regional or national preparedness level on refuge activities.

E. *Emergency presuppression (see Presuppression).*

1. *Step-Up Plan.*

a. *Based on staffing classes substantiated by NFDRS or another index that has been demonstrated superior and where there is sufficient data to develop a Step-Up Plan.*

b. *Actions planned, authorized and taken. Must be commensurate with the danger of fire represented by the criteria for staffing classes.*

2. *Funding (see Fire Financial Programs).*

F. *Fire detection.*

G. *Pre-attack plan (see Presuppression). Briefly discuss and include a Pre-attack Plan as an operational plan to the Fire Management Plan if appropriate.*

H. *Fire suppression (see Suppression). Include minimum impact suppression guidelines if they apply.*

I. *Rehabilitation (see Suppression).*

J. *Records and reports, including what is required in them and who is responsible for their completion (see Records and Reports).*

IX. *MANAGEMENT IGNITED PRESCRIBED FIRE PROGRAM (see Prescribed Fire).*

*A. *Describe long-term prescribed burn program necessary to achieve management objectives. If all or part (give percentage) of a burn supports the recovery of a threatened or endangered species, discuss this part of the program and reference the specific fire management unit(s).*

*B. *Describe general plan for prescribed burning program, including annual activities to prepare for and implement prescribed burn program including training. (Do not include copies of Prescribed Fire Plans or prescription elements. Discussing prescription elements in the Fire Management Plan is no longer an option; they must be specifically defined in each Prescribed Fire Plan.)*

*C. *Correlate with Fire Management Units section, and display burn units.*

*D. *Correlate with strategy and objectives sections. Define the normal prescribed fire burning seasons; and are they normal or bimodal (two periods per year)?*

*E. *Identify numbers and kinds of qualified personnel necessary to plan and execute a prescribed burn program. This should include monitoring personnel also.*

*F. *Briefly discuss procedures required to get ready for prescribed fire operations. (i.e., burn permits, air quality permits, state coordination, site preparation, equipment preparedness, etc.)*

*G. *Identify the fire behavior and fire effects monitoring required. Include both short term and long term appraisals. Emphasize measurements/evaluations needed to determine if objectives have been met.*

*H. *Discuss the complexity of the prescribed fire program (the NWCG complexity analysis could be useful [when available]). This analysis should discuss factors such as fuel types, smoke management, type of burn, size of burn, fire behavior, number of burns being executed during the same time, public and political feeling.*

*I. *Identify regional and national preparedness levels when prescribed fire will not be ignited and/or suppressed. Identify the maximum number of prescribed fires that will be active at one time in a FMU, on the refuge, or in the local area.*

*J. *Potential impacts of the plan implementation (visitors, users, and local communities), both on and off site. Include environmental, sociological, and economic impacts, and discussion of what impacts may be unacceptable and how to mitigate them.*

*K. *Describe documentation requirements. What documentation will be required to implement management ignited prescribed fire on the refuge.*

*L. *Describe reporting requirements. What reports (both institutional and refuge developed) will be used.*

*M. *Provide format for critiques of prescribed burn operations.*

X. PRESCRIBED NATURAL FIRE PROGRAM (see Prescribed Natural Fire).

*A. *Present a brief, but sound rationale for permitting natural fires to burn in ecosystems. State objectives of the program and acceptable results. Cross reference to the description of Fire Management Units.*

*B. *Describe the general plan for prescribed natural fire management. Include annual activities to prepare for and implement prescribed natural fire management, including training.*

*C. *Define the prescribed conditions for a prescribed natural fire by fire management unit. They define the conditions under which the prescribed* *natural fire will achieve the objectives developed for each fire management unit and include provisions for public safety and the protection of property. They should include environmental (including drought assessment) and fire behavior, geographic, administrative, and legal elements. Combinations of environmental conditions, fire behavior, fire locations, legal concerns, funding, and management objectives must be considered and evaluated in defining the constraints and conditions under which a prescribed natural fire may be allowed to burn.*

*D. *Provide a decision chart/tree for authorizing prescribed natural fire operation and the responsibilities for prescribed natural fire management: define how to implement the PNF management process and how to manage the fire daily. Correlate with the fire management units section; which FMU the fire is in and which decision process pathway is appropriate.*

*E. *Correlate the prescribed fire management process with the strategy and objectives sections of this plan.*

*F. *Identify regional and national preparedness levels when prescribed fire will not be ignited and/or suppressed. Identify the maximum number of prescribed fires that will be active at one time in a FMU, on the refuge, or in the local area.*

*G. *Potential impacts of the plan implementation (visitors, users, and local communities), both on and off site. Include environmental, sociological, and economic impacts, and discussion of what impacts may be unacceptable and how to mitigate them.*

*H. *Identify the numbers and kinds of qualified personnel who must be present to implement/manage a prescribed natural fire program.*

*I. *Briefly discuss procedures required to get ready for prescribed natural fire operations. (i.e., burn permits, air quality permits, state coordination, site preparation, equipment preparedness, etc.)*

*J. *Monitoring fire behavior and fire effects: state what must be monitored in order to make informed management decisions on a PNF and the frequency/schedule.*

*K. *Fire reporting: include procedures for daily formal report and revalidation that conditions, resources, and fire location are still acceptable for a PNF.*

*L. *Fire Situation Analysis/Escaped Fire Situation Analysis: specify daily preparation or revalidation of the FSA to derive fire potential probable growth, and suppression resources that would be needed to make an appropriate suppression response if the fire were to be declared a wildfire. Document* *actions needed to protect special resources (natural and cultural) and provide for the public safety.*

**M. Explain the funding/fiscal tracking of PNF costs.*

**N. Project fire plan: develop a standard outline of contents for a project record for each PNF. Include as a minimum:*

1. *FSA Part II, holding procedures acceptable to keep the fire within prescription.*
2. *FSA Part II, contingency procedures to make appropriate suppression response if the fire is declared a wildfire.*
3. *Monitoring requirements (including FSA Part I) and a schedule of monitoring for that particular fire.*
4. *Revalidation procedures (daily requirement).*
5. *Funding process/steps, cost accounting for PNFs.*
6. *Others as appropriate for the situation.*

**O. Information and interpretation actions for PNFs.*

**P. Potential impacts of the plan implementation (visitors, users, and local communities), both on and off site. Include environmental, sociological, and economic impacts, and discussion of what impacts may be unacceptable and how to mitigate them.*

XI. AIR QUALITY / SMOKE MANAGEMENT GUIDELINES (See Air Quality and Smoke Management)

**XII. FIRE RESEARCH AND/OR MONITORING*

XIII. PUBLIC SAFETY

XIV. PUBLIC INFORMATION AND EDUCATION

XV. ARCHEOLOGICAL / CULTURAL / HISTORIC RESOURCES

XVI. FIRE CRITIQUES AND ANNUAL PLAN REVIEW (See Reviews)

**XVII. CONSULTATION AND COORDINATION*

XVIII. APPENDICES

*A. *References cited*

*B. *Definitions if needed to described refuge specific operations*

*C. *Threatened or endangered species list for which Section 7 intraservice consultations will be required.*

D. *Normal Unit Strength (NUS) inventory*

E. *Cooperative agreements*

*F. *NEPA and NHPA compliance*

*G. *Enabling legislation for wilderness*

H. *Any other refuge-specific supplemental information*

I. *Fire Prevention Planning Chapter*

J. *List of additional fire management plans needed to fully execute the Fire Management Plan.*

Other Operational Plans

Other operational plans may support the Fire Management Plan. The inclusion of these plans are dependent on strategies developed in the Fire Management Plan. These other supporting plans may include the following, and may include other plans the refuge determines important in accomplishing the objectives of the Fire Management Plan:

1. **Prescribed Fire Plan**

COVER PAGE

Refuge or Station ______________________________

Unit ______________________________________

Prepared By: ____________________ *Date:* ______

Reviewed By: ____________________ *Date:* ______
Refuge Manager

Reviewed By: ______________________ *Date:* ______
Prescribed Fire Burn Boss

*Reviewed By:*____________ __________ *Date:* ______
Regional Fire Management Coordinator

Reviewed By: ________________________ Date: ______
(Others)

The approved Prescribed Fire Plan constitutes the authority to burn, pending approval of Section 7 Consultations, Environmental Assessments or other required documents. No one has the authority to burn without an approved plan or in a manner not in compliance with the approved plan. Prescribed burning conditions established in the plan are firm limits. Actions taken in compliance with the approved Prescribed Fire Plan will be fully supported, but personnel will be held accountable for actions taken which are not in compliance with the approved plan.

Approved By: ________________ Date: ______

PRESCRIBED FIRE PLAN

Refuge: __________ Refuge Burn Number: _______

Sub Station: _______ Fire Number: ___________

Name of Area: _______ Unit No. _____________

Acres To Be Burned: ____ Perimeter Of Burn: _________

Legal Description: Lat. __ Long. __ T __ R __ S __

County: _____________________________

Is a Section 7 Consultation being forwarded to Fish and Wildlife Enhancement for review ? Yes No (circle).

(Page 2 of this PFP should be a refuge base map showing the location of the burn on Fish and Wildlife Service land)

The Prescribed Fire Burn Boss/Specialist must participate in the development of this plan.

I. GENERAL DESCRIPTION OF BURN UNIT

Physical Features and Vegetation Cover Types (Species, height, density, etc.):

Primary Resource Objectives of Unit (Be specific. These are management goals):

1)
2)
3)
4)

Objectives of Fire (Be specific. These are different than management goals):

1)
2)
3)
4)

Acceptable Range of Results (Area burned vs. unburned, scorch height, percent kill of a species, range of litter removed, etc.):

1)
2)
3)
4)

II. PRE-BURN MONITORING

Vegetation Type	*Acres*	*%*	*FBPS Fuel Model*
________	__	__	________
________	__	__	________
________	__	__	________
________	__	__	________
Total	__	__	________

Habitat Conditions (Identify with transect numbers if more than one in burn unit.):

Type of Transects:

Photo Documentation (Add enough spaces here to put a pre-burn photo showing the habitat condition or problem you are using fire to change/correct. A photo along your transect may reflect your transect data.):

Other:

III. PLANNING AND ACTIONS

Complexity Analysis Results:

Site preparation (What, when, who & how. Should be done with Burn Boss):

Weather information required (who, what, when, where, how, and how much):

Safety considerations and protection of sensitive features (Adjacent lands, visitors, facilities, terrain, etc., and needed actions. Include buffer and safety zones. Be specific, indicate on a burn unit map. Map should be a USGS quadrangle if possible, so ridges, washes, water, trails, etc. can be identified.)

Special Safety Precautions Needing Attention (Aerial ignition, aircraft, ignition from boat, etc.):

Media Contacts (Radio stations, newspaper, etc., list with telephone numbers):

Special Constraints and Considerations (Should be discussed with Burn Boss):

Communication and Coordination on the Burn (Who will have radios, frequencies to be used, who will coordinate various activities.):

IV. IGNITION, BURNING AND CONTROL

Planned or Proposed *Actual*

Scheduling: Approx. Date(s) __________ ______

Time of Day __________ ______

	Acceptable Range		
FBPS Fuel Model ____	*Low*	*High*	*Actual*
Temperature			
Relative Humidity			
Wind Speed (20' forecast)			
Wind Speed (mid-flame)			
Wind Direction			
Cloud Cover (%)			
ENVIRONMENTAL CONDITIONS			
Soil Moisture			
1 hr. Fuel Moisture			
10 hr. FM			
100 hr. FM			
Woody Live Fuel Moisture			
Herb. Live Fuel Moisture			
Litter/Duff Moisture			
FIRE BEHAVIOR			

Type of Fire (H,B,F)			
Rate of Spread			
Fireline Intensity			
Flame Length			
Energy Release Component *NFDRS Fuel Model*			

Cumulative effects of weather and drought on fire behavior:

Ignition Technique (Explain and include on map of burn unit. Use of aerial ignition must be identified in this plan. Last minute changes to use aircraft will not be allowed and will be considered a major change to the plan. This will require a resubmission):

Prescribed Fire Organization (See Section VII, Crew and Equipment Assignments. All personnel and their assignments must be listed. All personnel must be qualified for the positions they will fill.)

Other (If portions of the burn unit must be burnt under conditions slightly different than stated above, i.e., a different wind direction to keep smoke off of a highway or off of the neighbors wash, detail here.)

Prescription monitoring (Discuss monitoring procedure and frequency to determine if conditions for the burn are within prescription):

V. SMOKE MANAGEMENT

Make any Smoke Management Plan an attachment.

Permits required (who, when):

Distance and Direction from Smoke Sensitive Area(s):

Necessary Transport Wind Direction, Speed and Mixing Height (Explain how this information will be obtained and used):

Visibility Hazard(s) (Roads, airports, etc.):

Actions to Reduce Visibility Hazard(s):

Residual Smoke Problems (Measures to reduce problem, i.e., rapid and complete mop-up, mop-up of certain fuels, specific fuel moistures, time of day, etc.):

Particulate emissions in Tons/Acre and how calculated (This should be filled in after the burn so more precise acreage figures can be used):

VI. FUNDING AND PERSONNEL

Activity Code: _____

Costs

	Equipment & Supplies	*Labor*	*Overtime*	*Staff Days*	*Total Cost*
Administration (planning, permits, etc.)					
Site Preparation					
Ignition & Control					
Travel/Per Diem					
Total					

VII. BURN-DAY ACTIVITIES

Public/Media Contacts on Burn Day (List with telephone numbers):

Crew & Equipment Assignments (List all personnel, equipment needed, and assignments. The following is not an all inclusive list for what you may need.)

Burn Boss/Manager -
Ignition Specialist -
Ignition Crew -
Holding Specialist -
Holding Crew -
Aircraft Manager -
FWBS -
Dispatcher-
Other -

Crew Briefing Points (Communications, hazards, equipment, water sources, escape fire actions, etc. To be done by Burn Boss. Refer to Safety Considerations in Planning Actions and points listed below):

Ignition Technique (Methods, how, where, who, and sequence. Go over what was submitted in Section IV and any changes needed for the present conditions.) Attach ignition sequencing map if necessary:

Personnel Escape Plan:

Special Safety Requirements:

Go-No-Go Checklist:

Holding and Control:

Critical Control Problems:

Water Refill Points:

Other:

Contingency Plan for Escaped Fire (Are there crews standing by to initial attack or will people doing other jobs be called upon to do initial attack, who must be called in case of an escape, what radio frequencies will be used, etc.)

Mop Up and Patrol:

Rehabilitation Needs:

DI 1202 Submission Date:

Special Problems:

VIII. CRITIQUE OF BURN

Were burn objectives within acceptable range of results? (Refer to Section I):

What would be done differently to obtain results or get better results?

Was there any deviation from plan? If so, why?

Problems and general comments:

IX. POST-BURN MONITORING

*Date:*___________ *Refuge Burn Number:* ______

Length of Time after Burn: ___________________

Vegetative Transects:

Comments on Habitat Conditions, etc.:

Photo Documentation:

Other:

X. FOLLOW-UP EVALUATION

Date: ___________ *Refuge Burn Number:* _______

Length of Time after Burn: ___________________

Vegetative Transects:

Comments on Habitat Conditions, etc.:

Photo Documentation:

Other:

2. Dispatch Plan (Sample)

Coot Creek National Wildlife Refuge

When report of smoke or fire is received get as much information as possible from the caller. The following list should be filled in.

Location of smoke or fire: __________________

Location of caller: ______________________

Name and telephone number of caller: ______________

Color of smoke: _______________________

Size of fire: ________________________

Type of Fuel: ________________________

Character of fire (running, creeping, etc.): __________

Anyone on the fire: ______________________

See anyone in the area or vehicles leaving the area: ______

1. *Check map location and ownership/protection status*
2. *If fire is on or threatening refuge dispatch small (200 gal.) pumper and three qualified staff.*
3. *Notify refuge manager*
4. *Notify state forest office Phone 702-6117 (George in dispatch)*
5. *If fire danger very high or extreme, put reconnaissance aircraft over the fire.*

   Carded aircraft

Beach Aircraft 878-9801	*Cessna 185*	*$36.00/hr.*
	Supercub	*$30.00/hr.*
Tico Aviation 433-0041	*Twin Beech*	*$75.00/hr*

6. *Maintain log of all radio and telephone communications.*
7. *Remain on duty and dispatch further assistance as ordered from the fire. See following support items:*

Adjacent landowners:

Forest Papers Inc.	*703-1112*

Barry Smith, Mgr.

Coldwater National Park *Gary Small, Supt.*	*702-5376*

Refuge Fire Personnel	*Qualified*	*Home Phone*
Jim Johnson	*Task Force Leader*	*702-1987*
Jack Jones	*Task Force Leader*	*702-9432*
Fred Stone	*Crew Boss*	*702-7125*
Barney Smith	*Engine Operator*	*702-2987*
Wayne Dial	*Firefighter*	*703-4569*
Mary Dieke	*Firefighter*	*702-2654*
Liz Ossa	*Dispatcher*	*703-9140*

DIRECTORY

Regional Office

Fire Mgt. Coordinator	*Office*	*(213) 575-3387*
	Home	*(213) 987-1256*
ARD	*Office*	*(213) 575-9300*

NIFC

FWS Coordinator	*Office*	*(208) 389-2595*
	Home	*(208) 999-1234*
Logistics Support		*(208) 389-2400*

State Forestry Department

Coldfeet District Forester	*Office*	*702-6117*
John Dean, Forester	*Home*	*702-3456*

Other Services

Gasoline

Fuel Stop	*703-6231*
Flats Oil Co.	*702-9191*

Hospital

St. Lukes Memorial	*703-8868*

Ambulance	*911*
Sheriff	*911*
State Police	*911*

Support Services

Engines

Coldfeet District (State) *2 Type 3 engines* *1 Type 4 engine* *1 5,000 gal. tanker*	*702-6117*

Tractors

Coldfeet District (State) *1 D-6 w/fireplow* *1 Transport*	*702-6117*
Gyro Logging Inc. *1 D-6 w/blade* *2 D-4 w/blade* *2 Transports* *(Have preset rates with state)*	*867-0923*

Aerial Tanker

U.S.F.S. Tanker Base *B-26 1,200 gal.* *CL-215 1,000 gal.* *(Seasonal availability)*	*921-0419*

3. Step-up Plan (Sample)

(This is only an example. Actual Step-Up Plans must be tailored for the specific needs of the refuge and based on refuge specific data.)

`Coot Creek National Wildlife Refuge Step-up Plan`

Staffing Class	***Burning Index***	***Step-Up Action***
SC-1	*0-11*	***Fire danger rating signs at visitor concentration areas activated at start of fire season. Normal tours of duty and normal numbers of initial attack/monitor personnel will be available.***

Staffing Class	*Burning Index*	*Step-Up Action*
SC-2	*12-22*	*Same as SC-1.*

Staffing Class	*Burning Index*	*Step-Up Action*
SC-3	*23-55*	*All fire equipment use for project work will be brought in at the end of each day and maintained in a fire ready condition.* *In addition to SC-1. If predicted or observed lightning activity level (LAL) is 4, 5, or 6, automatically move up to SC-4.* *If a high visitation period has been determined to pose exceptional human caused risk of wildland fire, move to SC-4 (e.g. historic records of a specific three-day holiday weekend, opening days of hunting seasons on adjacent lands producing additional human caused fires).* *If live and/or dead fuel moistures are sufficiently low (e.g. live fuel moisture in sagebrush of 90%, 100 HR TL FM 7%, 1000 HR TL FM 9%) to allow rapid fire spread or high fire intensity in the presence of wind, step-up may be moved to SC-4. This section is included because wind velocities often increase in late afternoon after NFDRS indices have been obtained for the day.*

Staffing Class	*Burning Index*	*Step-Up Action*
SC-4	*56-71*	*All fire equipment will be kept in a fire ready condition and positioned appropriately. No fire equipment will be used for project work.* *If the LAL is between 3 and 6, a fixed wing detection overflight may be requested from an adjacent cooperator. If cooperating aircraft are not available, a fixed wing aircraft may be hired for a detection flight. Cooperators and the RFMC will be advised of these situations daily.* *The normal tour of duty for fire lookouts will ordinarily be staggered, with one lookout staffed from 0800 to 1630 and the other staffed from 0930 to 1800. Tours of duty will be extended through the burning period and/or during distinct evening and nighttime periods when the observed LAL is 3 or greater or when observations suggest the likelihood of LAL between 3 and 6. If these LAL levels occur during the night, the lookouts should begin detection efforts by 0800 the next morning.*

Intensified road and campground patrols for prevention and detection purposes may be initiated. Inter-agency detection and suppression efforts will be coordinated by the FMO.

Workweeks and/or daily tours of duty for regular initial attack/monitoring personnel may be expanded, particularly when the observed LAL is between 3 and 6, the predicted LAL is from 4 to 6, and/or the human caused risk is exceptionally high (MR=80).

Staffing Class	*Burning Index*	*Step-Up Action*
SC-4	*56-71*	*In these situations, the initial continued attack/monitoring crew will consist of a minimum of two people, one of whom should be qualified as either a fire monitor or a Type IV incident commander, and will be held on duty through the burning period. The standby team in any SC-4 incident should be stationed in the area where risk is considered highest. Other initial attack/monitoring teams may be held on standby in other areas if conditions warrant.* *Key seasonal personnel will be identified by name and position and evaluated for fire experience after the area's full complement of initial attack/monitoring personnel has been hired.* *When lightning risk is high, emphasis will be placed on extending workweeks/tours of duty of initial attack/monitoring personnel with experience/competence in fire suppression and fire monitoring. When human caused risk is high, emphasis will be placed on those initial attack personnel duty-stationed at or near visitor concentration areas. (Some of these staffing needs may be met by adjusting work schedules and without expenditure of 9120 funds.)* *Backcountry permits may be amended to prohibit open fires.*

Staffing Class	*Burning Index*	*Step-Up Action*
SC-5	*72+*	*All SC-4 actions with further constraints noted below.* *Tours of duty for fire lookouts will be extended through the burning period and/or during distinct evening and nighttime periods when the observed or predicted LAL is 3 or greater.* *Workweeks and/or daily tours of duty for regular initial attack/monitoring personnel and key permanent personnel may be expanded, particularly when predicted or observed LAL is between 3 and 6 and/or human caused risk is exceptionally high (MR=80).*

In these situations, the initial attack/monitoring team will, if possible, consist of a minimum of three qualified people, and will be held on duty through the burning period.

The main standby initial attack/monitoring team in any SC-5 incident should be in the area where risk is considered highest. Initial attack/monitoring teams may be held on standby in other areas if conditions warrant.

Temporary closures may be imposed on areas in the refuge or for certain activities (e.g. open fires) in conjunction with similar impositions by adjacent land managing agencies.

4. Pre-attack Plan Checklist

COMMAND

Pre-attack EFSA (if appropriate)
Pre-positioning needs
Draft delegations of authority
Management constraints
Interagency agreements
Evacuation procedures
Structural protection needs
Refuge Closure procedures

OPERATIONS

Helispot, helibase locations
Flight routes, restriction, hazard areas
Water sources
Control line locations
Natural barriers
Safety zones
Staging area location

LOGISTICS

ICP, base, camp locations
Roads, trails (including limitations)
Utilities
Medical facilities
Stores, restaurants, service stations
Transportation resources, locations and aerial
Rental equipment sources (by type)
Construction contractors

Sanitary facilities
Police, fire departments
Communications (radio, telephone)
Sanitary landfills
Potable water sources
Maintenance facilities
Media contacts and location for information office

PLANNING

Refuge base map
Topographic map
Infrared imagery
Vegetation/fuel maps
Hazard locations (ground and aerial)
Archeological/cultural base map
Endangered species critical habitats
Sensitive plant populations
Special visitor use areas
Land status

5. Fire Rehabilitation Plan

I. Background

A. Identify the fire by the following items:

1. Location and size.
2. Soils.
3. Topography.
4. Climate.
5. Vegetation prior to fire.
6. Intensity of fire.
7. Hydrology.
8. Land Ownership(s) involved.

B. Resource uses.

Describe resource uses in the burned area prior to the wildfire, including public use and wildlife use by species or time of year.

II. Evaluation and Analysis

A. Describe on-site physical factors such as damages to watershed and erosion hazard from water, wind, and the removal of vegetative cover.

B. *Describe loss and damage to physical structures and facilities, i.e., fences, bridges, etc.*

C. *Describe off-site nonphysical factors such as water quality, sedimentation.*

D. *Describe the effects of the wildfire on wildlife and wildlife habitat.*

III. *Rehabilitation Needs and Objectives*

A. *Describe rehabilitation alternatives including "no action."*

B. *Provide recommendations for treatment and subsequent management of the burned area to assure that objectives are met.*

IV. *Environmental Considerations*

A. *Discuss positive or negative impacts of proposed rehabilitation alternatives on resources including endangered species, cultural resources, and wilderness if present. Impacts, if any, on physical structures and facilities should also be discussed.*

B. *Briefly relate rehabilitation plan to Fire Management Plan and refuge Comprehensive Management Plan or other appropriate long-term planning document.*

C. *Describe compliance with other environmental mandates.*

V. *Summary of Anticipated Resource Needs and Costs*

A. *Description of units.*

Tell the size of the treatment areas and describe ownership(s).

B. *Cost per unit.*

Describe each activity and its unit cost (reseeding, dike reconstruction, replacement or rehabilitation of structures, etc.).

C. *Human resource requirements.*

Describe the amount of time, number of people, and overall cost of planning and executing the rehabilitation.

D. *Total cost.*

Give the total cost of the rehabilitation based on A-C above. Display information for B, C and D in chart form for easy reference.

VI. *Graphic/Pictorial Presentation/Map Exhibit*

- *A.* *Perimeter of fire shown in black.*
- *B.* *Depict boundaries of treatment area.*
- *C.* *Provide pictures of resources to be rehabilitated.*

VII. *Limitations*

- *A.* *The cost of rehabilitating or replacing fences or other management facilities damaged by fire may be charged to emergency fire rehabilitation to the extent that they are needed to protect the investment of public funds or to return the facilities to pre-fire standards.*
- *B.* *Costs above and beyond those outlined in A. (such as rehabilitation of refuge buildings) are not fire rehabilitation costs and should not be charged to subactivity 9240.*

6. Monitoring Plan (See Prescribed Fire Management Handbook.)
7. Emergency Operations Plan (See Wildfire Suppression Operations Handbook.)
8. Wildfire Prevention Plan (See 1.3.2 Fire Prevention)

1.4.3 REGIONAL FIRE DISPATCH PLAN

Each regional office will prepare a regional fire dispatch plan prior to the region's normal fire season. This plan is designed for large fire support and contains current information regarding personnel and equipment availability, duty contacts and a telephone listing of regional fire management personnel. Preparedness planning for the region will be included in this plan. A copy will be provided to the Service Fire Management Coordinator.

1.5 TRAINING, QUALIFICATIONS AND CERTIFICATION

1.5.1 PERSONNEL

Training

Modern fire management is a highly technical and professional operation requiring skilled, knowledgeable employees to meet Fish and Wildlife Service program objectives. **Individuals will not be assigned to duties for which they lack training and/or certified experience.**

Departmental policy requires all personnel engaged in interagency wildland fire suppression and/or prescribed fire to meet or exceed standards set by the National Wildfire Coordinating Group (NWCG). The Fish and Wildlife Service accepts NWCG standards for interagency operations. All employees, permanent, seasonal, and temporary will be qualified within the NWCG system for the interagency position assigned, unless assigned as trainees. Agency qualifications for positions not covered by NWCG standards are included in Agency Determined Skill Levels.

Management at all Fish and Wildlife Service levels should recognize that employees trained and experienced in fire management possess skills which contribute to quality performance in other job areas. Many of these employees receive supervision and management training as part of the wildland fire and prescribed fire curriculum. Those skills are equally applicable to management of other types of incidents, and to routine supervisory and managerial duties (e.g. maintenance, interpretation, administration, resource management among others). Simply stated, the benefits accrued by developing these skills are well worth investments of time and fiscal resources.

Objectives

The following objectives are established for the Fish and Wildlife Service wildland fire management training program:

1. Promote safe individual job performance through appropriate training in support of Fish and Wildlife Service fire management activities, particularly prescribed fire and wildfire suppression.

2. Provide technical and logistical support and fire management training to regional offices and field areas.

3. Provide and manage a job performance and instructor certification tracking system.

4. Cooperate and coordinate with the interagency wildland fire management community to achieve mutual training objectives.

5. Incorporate, where possible, training offered by other sources into the suppression and prescribed fire curricula.

Program Administration

Fish and Wildlife Service wildland fire management training is based upon criteria specified within the interagency wildland fire suppression and prescribed fire training curriculum approved by NWCG. This curriculum is supportive of positions described within the Wildland Fire Qualification Subsystem Guide, PMS 310-1 (310-1). Position performance requirements are outlined in individual position task books (PTB's) for each position.

Additional fire management training which is deemed necessary to improve employee proficiency but is not yet addressed within the NWCG curriculum will generally continue to be developed at the regional or national level. This training often addresses an agency-specific need or is targeted toward the development of skills for positions which have not yet been adopted by NWCG.

Training needs analyses are developed each year at the refuge, regional and national levels. The assessment process provides information needed to determine which courses will be required, which employees will attend them, and how many slots will be available. Courses should be based upon identified refuge needs, reflect goals established in individual employee development plans, and identified in the Training and Qualifications module of the Fire Management Information System (FMIS). A standard format and process for a training needs analysis can be found as a supplement to the NWCG Course Coordinator's Guide, PMS 907, available from the Publications Management System at the National Interagency Fire Center.

Generally, the refuge or region is responsible for sponsoring 100- and 200- complexity level courses. It is highly recommended that all training, regardless of level, be presented by interagency instructors and to interagency audiences.

Intermediate complexity level (300 and 400) training needs are determined by the regional fire management coordinator (RFMC). Each RFMC is a member of his/her regional interagency training committee. These committees identify priority intermediate level training needs and designate host agencies and course coordinators. The RFMC identifies Fish and Wildlife Service personnel requiring intermediate training and ensures that those employees receive this training.

National level, 500- and 600- complexity level, training needs are determined by the Fire Management Branch. All national level training will be based upon a position needs analysis.

Fire Management Curriculum

The curriculum supporting wildland fire management qualifications and position certification is explained in detail in 310-1. Details relating to course descriptions and trainee/instructor qualifications are provided in the NWCG Field Manager's Course Guide, PMS 901-1.

Training Development

Needs for the development of new training, or the revision of existing materials should be routed to regional fire management coordinators. Fish and Wildlife Service development needs are prioritized by regional fire management coordinators and the branch specialist.

Copies of fire training materials developed and/or produced by regions and refuges should be provided to the Fire Management Branch.

Training Nomination Process

Employees identified for national level training will be nominated for such training by their respective regional fire management coordinator; nominations will be forwarded to the Fire Management Branch in priority order. The Fire Management Branch will then establish national priorities.

Regional nominations should be consistent with regional or geographic board direction. Such consistency should be indicated on the nomination in order to assist the Branch in establishing national priorities. This process ensures both regional and national training/overhead development objectives are met, and provides a means for the nationwide tracking of qualified people.

Nominations for intermediate level courses should be routed to regional fire management coordinators for prioritization. Each regional fire management coordinator should develop written guidelines clarifying this process for his or her region.

The Interagency Training Nomination, PMS 921-2 form should be utilized for nominating employees to all levels of wildland fire training. Forms can be ordered through the NIFC Publications Management System.

Fire Management Instructor Program

Each region is responsible for the selection, training, and certification of an adequate number of Fish and Wildlife Service instructors for fire management training.

NWCG recognizes two levels of wildland fire instructor: lead instructor (Type I) and unit instructor (Type II), and the Fish and Wildlife Service has adopted these standards. A lead instructor must have sufficient experience in presenting all units of the course so as to be capable of last minute substitution for unit instructors. It is recognized that some courses may contain material of a highly technical nature and no one person may be technically competent in all areas. Lead instructors must also be minimally position qualified at the next higher job level (e.g. a Lead Instructor for S-230 "Single Resource Boss-Crew" must minimally be qualified as a Strike Team Leader-Crew).

Unit instructors must be experienced in the lesson content they are presenting. Unit instructors must be minimally position qualified at the job level to which the training course is targeted.

All 100 level courses may be taught by anyone having the requisite experience who is approved by the regional fire management coordinator. No instructor training requirements exist for either lead or unit instructors. Higher complexity level courses generally involve significant travel costs, making it prudent to require formal instructor training to assure quality training for employees.

Unit instructors participating in 200 level training should attend an instructor course of at least 32 hours that emphasizes adult education skills. The Facilitative Instructor, FLETC Instructor, and collegiate level adult education courses are representative of adult education programs meeting this requirement. Exceptions may be made for those instructors who have demonstrated strong instructional skills and abilities.

Lead instructors for 200 level training courses and all instructors of 300 level and above courses are required to have instructor training as described above. Exceptions may be made by an agency for those instructors who have demonstrated strong instructional skills and abilities.

Certification of instructors is generally the responsibility of lead instructors, not of managers or supervisors. However, regional fire management coordinators may occasionally designate and certify both levels of instructors based upon personal knowledge of skills and instructional abilities.

The NWCG Course Coordinator's Guide, PMS 907 defines instructional responsibilities in the form of a checklist of duties for each of the three major roles involved in course presentation. The roles may be spread among several individuals or in some cases done by a single individual. The roles are:

1. Course Coordinator - the local manager hosting the training.

2. Lead Instructor - the person responsible for total instructional content.

3. Instructor - a person responsible for a unit of instruction.

The lead instructor evaluates and certifies the performance level of each instructor after each presentation. The course coordinator evaluates the lead instructor, then forwards all evaluations to the regional fire management coordinator within 30 days. Regional fire management coordinators then enter the appropriate certification levels into the Fish and Wildlife Service Fire Management Information System.

New employees with fire management instructional background should complete an "instructor cadre" questionnaire and forward it to their regional fire management coordinator for entry into the Fire Management Information System.

Training Certification Process

Each course lead instructor provides successful trainees with certificates of completion upon conclusion of the course. The instructor also ensures that appropriate training completion data is relayed to regional fire management coordinators/and or refuge fire management officers to enter into the Fish and Wildlife Service Fire Management Information System.

National level training courses (500 level and above, e.g., S-590; I-520/-620) require entry of training completion dates by the Fire Management Branch. Successful trainees should forward a copy of their certificates to the regional fire management coordinator for computerized entry by the Fire Management Branch.

Training Materials. Training materials will not be available from the Fire Management Branch. Refuges will request funds for training materials in their annual funding requests, and regions will request funds for instructors and training materials needed to support their refuges. Instructor materials will be provided only to identified instructors.

All NWCG-approved training packages and course materials are readily available through the Publications Management System at the National Interagency Fire Center. NWCG National Fire Equipment System Catalog Part 2: Publications identifies all materials and ordering procedures and is updated each spring.

Qualification and Certification

The Fish and Wildlife Service is responsible for developing and maintaining employees who will implement all aspects of the Fish and Wildlife Service's wildland fire management program. The Fish and Wildlife Service utilizes NWCG interagency qualification and certification standards, which outline minimum training, experience, and physical fitness requirements, to meet this goal. When necessary, the Service will augment interagency standards to include Service-specific wildfire/prescribed fire positions. These positions are necessary due to Service requirements for training, experience and physical fitness which differ slightly from interagency standards. Service specific positions are established in order to meet Service specific fire management goals. Service specific positions are defined in a way that allows personnel in the position to transition from the Service specific position into the interagency position when the individual can meet interagency qualifications.

Objectives

The following program objectives are established to support and guide the standards:

1. Monitor all employees' wildland fire management development (training, experience and physical fitness) to ensure accurate and timely compliance with Fish and Wildlife Service qualification and certification standards.

2. Monitor and direct the development of training and experience for key fire management personnel to meet identified staffing, incident management, and prescribed fire needs.

3. Establish and implement qualification standards for positions not currently addressed in NWCG standards with other cooperating agencies to the extent possible.

4. Provide day-to-day assistance and direction to field and regional offices in use of the standards.

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5. Manage the Fish and Wildlife Service fire management instructor master list to ensure that accurate records are maintained on qualified instructors for all system users.

Minimum Service Standards

All Service personnel who perform on-line wildfire suppression (firefighter) or prescribed fire crewmember duties must have the following NWCG courses: S-130 Basic Firefighter and S-190 Introduction to Fire Behavior, or the Service Basic Fire Management Training. If Standards for Survival was not included in S-130, the course must be taken as a stand-alone 8 hour course. An annual safety refresher course, covering the Standard Fire Orders, 18 Watch Out Situations, and Fire Shelter deployment is required.

Wildfire Standards and Criteria

The Fish and Wildlife Service and other Federal land management agencies have adopted the NIIMS Wildland Fire Qualifications, as maintained and revised by the National Wildfire Coordinating Group. All Service personnel performing interagency wildfire suppression assignments must meet training, experience and physical fitness requirements as detailed in 310-1. All personnel funded with 91XX funds who are hired under a position description containing firefighting duties will also meet 310-1 requirements for the appropriate fire position. Refuge personnel who wish to obtain and maintain interagency wildfire qualifications must meet all 310-1 standards, including physical fitness, for positions they occupy on refuge wildfires.

On-Refuge Wildfire Suppression

On-refuge personnel who perform initial attack operations on refuge wildfires only may serve as the Service-specific position of Initial Attack Incident Commander Type 5 (ICT5) provided they meet Service established training, experience, and physical fitness requirements. See 1.5.6. The ICT5 position is established to meet the on-refuge workload which does not require the level of qualification of interagency standards for Incident Commander Type 4 (ICT4). The position will also provide an entry level IC position for advancement to interagency IC positions. This position is intended for use on refuge fires involving refuge personnel only, unless local cooperators concur with the ICT5 concept. Service personnel qualified as ICT5 can then participate on cooperator's fires as ICT5.

Agency determined skill positions of engine operator, dozer operator, and tractor/plow operator are also established to enable the Service to identify technical specialists available to operate equipment in a wildfire suppression capacity. Normally, personnel in these positions operate this equipment as a part of their regular jobs and are already certified by their region as qualified operators. See Agency Determined Skill Levels for training, experience, and physical fitness requirements for these positions.

Prescribed Fire Standards and Criteria

The Service and other Federal land management agencies will adopt NWCG standards for interagency prescribed fire operations when they are finalized and published. Some refuge prescribed fire operations may be defined as "low complexity" in nature. "Low complexity" prescribed fires have low risk of escape, no negative impacts if minor escapes occur, require low to moderate burning conditions, do not involve multiple fuel complexes or fuels which exhibit extreme fire behavior characteristics (such as California chaparral) and have simple burn objectives. These burns are usually conducted by a crew of 2-6 personnel with someone in charge. Prescribed fires which meet the subjective description of "low complexity" do not require a Prescribed Fire Burn Boss Type 1 or 2 as defined by NWCG.

In order to meet Service requirements for a burn boss to conduct burns subjectively described as "low complexity", the Service will establish the Service-specific position of Burn Boss Type 3 (RXC3) to meet the refuge prescribed fire workload which does not require the level of qualification of interagency standards of interagency burn boss positions.

Service requirements for training, experience and physical fitness for RXC3 are documented in Agency Determined Skill Levels.

Refuge personnel who wish to obtain and maintain interagency prescribed fire qualifications must meet all interagency standards for prescribed fire positions they occupy on refuge prescribed fires.

Program Administration

The Incident Qualifications System is a key application subsystem of the Fish and Wildlife Service's Fire Management Information System. It provides the integrating mechanism for managing personnel resources for fire staffing development and in suppression and prescribed fire operational activities. The system provides the annual certification of employees for incident command system and prescribed fire positions.

A key concept of the wildland fire qualifications system is that it is performance-based, i.e. based on the skills of the employee, rather than based on requisite training. An individual may become qualified for a position through a combination of experience and education (training). Conversely, the system allows for subjective evaluation by fire management staff of an employee's job performance competency. Even though technically qualified by the system, fire management may override and withhold a job certification if the employee has demonstrated inadequate performance or otherwise does not meet standards (fitness, medical, etc.).

Certification/Qualification. Management is responsible for certifying and documenting fire suppression and prescribed fire qualifications of its personnel. The certification process is the same as that employed in "Wildland Fire Qualifications Subsystem Guides" PMS 310-1 (NFES 1556) and "Task Book Administrators Guide" PMS 330-1 (NFES 1414) for wildland firefighting personnel.

The Incident Qualification System is designed to be accessed by each refuge and appropriate regional office. These offices input and modify required data for all employees involved in wildland fire management activities.

The refuge fire management officer is responsible for the input and maintenance of all pertinent refuge employee data and for ensuring that employees are trained, qualified, and certified at the levels which meet preplanned needs for initial and extended attack and prescribed fire. All permanent employees involved in fire management will be entered, but most seasonal employees generally will not, unless qualified at or above the single resource boss level. All individual records will be updated by January 31st each year, but refuges are encouraged to do so more frequently. The refuge fire management officer is also responsible for ensuring the accuracy of annual red cards, and for approving same.

Regional fire management coordinators are responsible for monitoring the accuracy of field input, determining and addressing region-wide qualifications and training needs, and assisting those field units not having on-line access capability.

Physical Fitness Requirements

The qualification and certification requirements include a physical fitness component. All Fish and Wildlife Service employees who are assigned wildland fire suppression and prescribed fire duties must be in adequate physical condition according to an established measurable method to safely fulfill their duties. Currently the aerobic Standard Step Test or the 1-1/2 mile run are acceptable measures.

Description of the four fitness levels are contained in 310-1. Physical fitness testing background and procedures are all outlined in the publications Fitness and Work Capacity (NFES 1596) and Fit to Work (PMS-304-1). Measuring Physical Fitness (Step Test) (PMS-305), an audio tape (NFES 1575), and step test calculator (NFES 2095) are available through PMS to assist in administering the test. These requirements and procedures will be strictly adhered to by all Fish and Wildlife Service wildland fire personnel.

Wildfire Standards

Employees participating in any wildfire activities on Fish and Wildlife Service or cooperator's lands will meet the requirements of the interagency and agency determined standards for the position(s) for which they are "red-carded" or in which they function. Generally, this level is designated as arduous, requiring an age-adjusted step test score of 45 or better or equivalent. The physical fitness requirements for wildland firefighting positions can be found in 310-1 for NWCG positions and for agency determined positions.

Exception to 310-1 Requirements for Physical Fitness Levels for On-Refuge Wildfire Operations

Refuges which do not have dedicated fire personnel, normally have a light suppression workload (minimal occurrence and acreage), do not initial attack wildfires using direct attack with handtools, and who have no cooperators/contractors to perform timely initial attack operations on refuge wildfires can request an exception to NWCG fitness requirements for personnel classified as Firefighter Type 1 or 2. The request is to be made to the Regional Office and will involve review by the Regional Fire Management Coordinator and approval at the Regional Office level. Exception approvals are to be documented in the refuge dispatch plan.

Factors which must be addressed within the request include, but are not limited to: fuels, terrain, and tactics employed. Exceptions may be granted where wildfires occur in light fuels over gentle terrain and are attacked using equipment such as dozers, tractor plows, and engines, as opposed to direct attack with handtools as the primary source of fireline construction. Refuges which demonstrate that an arduous physical fitness rating is not necessary to safely initial attack wildfires may use personnel who qualify at the moderate rating to initial attack wildfires. Moderate level is defined in 310-1.

Exceptions will apply only to initial attack operations. Should a fire become an extended attack incident (Type III) where interagency personnel are requested through the mobilization system, NWCG wildfire qualified personnel will be used.

Prescribed Fire

Prescribed fire physical fitness standards are agency determined and agencies are required to accept the physical fitness standards of another agency for prescribed fire positions.

Service prescribed fire physical fitness standards are determined based on the fitness definitions in 310-1, fuel type, terrain, and prescribed fire tactics normally used on the refuge. Prescribed fire fitness standards may differ from suppression fitness standards because prescribed fire activities are a management action and the pace of work is normally set by individuals as opposed to an emergency situation.

Employees participating in prescribed fire activities on refuges which have gentle terrain, and light to moderate fuel loads, are required to attain a "Moderate" physical fitness rating as defined in 310-1.

Exceptions to the standard are necessary when a refuge analysis of prescribed fire operations reveals that terrain, tactics and fuels present require physical fitness standards either more or less restrictive than a "Moderate" standard for a specific prescribed fire project. Refuge personnel will meet the highest physical fitness category required to safely conduct prescribed fire operations on the refuge, determined by terrain, tactics and fuels.

The Regional Office through the Regional Fire Management Coordinator and other personnel as designated, may review individual refuges or use an ecosystem approach to making the determination as to acceptable fitness levels for prescribed fire. Fitness levels should be documented in the refuge Fire Management Plan.

Aerobic Fitness Standards and Requirements

The step test or the alternate test, a 1.5 mile run, will be used to determine the aerobic fitness level for those personnel in fire positions which have an identified fitness level. The step test or the 1 1/2 mile run should not be given to anyone who has any obvious physical conditions or known heart problems that would put them at risk.

The audiotape that is used in the test provides specific guidance on how to administer the test. It is advisable to administer the step test in a quiet room at normal room temperature with as few distractions as possible. An individual that has at a minimum emergency medical technician training should be present during the testing. Many units utilize the services of a health technician or nurse when conducting aerobic fitness tests.

The step test requires the use of the step test calculator (NFES 1575) and the audiotape (NFES 2095) with metronome beat recorded which are available through PMS. A bench is required on which to step, the bench for men is 15 3/4" high and the women's bench is 13". A weight scale is needed to weigh each person. Again, the audiotape provides specific direction on how to administer and determine test results.

The 1 1/2 mile run requires a flat area on which to run and a stop watch for recording the time for each individual. A table is required for converting running time to the equivalent step test score. A table is provided as a quick reference.

There are two documents that deal with physical fitness and ability to perform the job that can be ordered. These are good reference booklets for any office where physical fitness is a part of the job and both may ordered through the Publication Management System using the NWCG National Fire Equipment System Catalog Part 2: Publications. If a unit is interested in developing a fitness program, these booklets provide suggested guidance for individuals who are inactive to individuals that are already involved in a fitness program.

- FITNESS AND WORK CAPACITY, PMS 304-2 (1977)

- FIT TO WORK, PMS 304-1, (1985)

The following conversion information is found in both the Fit to Work? and the Fitness and Work Capacity publications. The running time for the 1 1/2 mile run is converted to a step test score using the following:

		TIME			
Minutes		Seconds			
	0	15	30	45	
8	64	62	60	58	
9	57	56	55	54	
10	53	52	50	49	
11	48	47	46	45	
12	44	43	42	40	Score
13	39	38	37	36	
14	35	34	33	32	
15	31	30	29	28	
16	27	26	25	24	

1. No age correction
2. No differences in sexes
3. Altitude adjustment:

below 5000 feet: none
5000 feet: subtract 30 seconds from time
6000 feet: subtract 40 seconds

7000 feet: subtract 50 seconds
8000 feet: subtract 60 seconds

SF-78 and Supplement Information

The following information must be include on all Standard Form No. 78: Certificate of Medical Examination (see also February 11, 1992 memo: Vacancy Announcements for Seasonal Firefighters.):

Part B.3. (Brief Description of What Position Requires Employee To Do) state:

Participates in arduous fire suppression activities in rugged mountainous terrain from sea level to over 10,000 ft. elevation. Uses a variety of handtools, power saws and pumps. Exposed to long and irregular working hours under exhausting conditions, including adverse weather conditions required to maintain physical performance over long periods of time.

Part B.4. (Circle the number proceeding each functional requirement and each environmental factor essential to the duties of this position. List any additional essential factors in the blank spaces.) circle and/or include (underlined) the following:

A. FUNCTIONAL REQUIREMENTS

1. Heavy lifting, 45 pounds and over
4. Heavy carrying, 45 pounds and over
6. Pulling hand over hand (8 hours)
10. Reaching above shoulder
11. Use of fingers
12. Both hands required
13 Walking (16 hours)
14. Standing (16 hours)
16. Kneeling (3 hours)
17. Repeat bending (12 hours)
18. Climbing, legs only (8 hours)
19. Climbing, use of legs and arms
20. Both legs required
21. Operation of crane, truck, tractor, or motor vehicle
22. Ability for rapid mental and muscular execution simultaneously
28. Both eyes required
35. Other (specify) See attached supplemental form 1400-108

B. ENVIRONMENTAL FACTORS

2. Outside and inside
3. Excessive heat
4. Excessive cold

6. Excessive dampness
7. Dry atmospheric conditions
8. Excessive noise
10. Dust
12. Fumes, smoke, or gasses
17. Slippery or uneven walking conditions
18. Working around machinery with moving parts
19. Working around moving objects or vehicles
22. Unusual fatigue factors
23. Working with hands in water
26. Working closely with others
27. Working alone
28. Protracted or irregular hours of work
29. Other (specify) travel in isolated areas

Form 1400-108: Physical Requirements for Firefighters and Smokejumper Positions, must be included with SF-78 and each function must be addressed by the examining physician:

Eyesight
Ears
Nose, Mouth & Throat
Teeth
Lungs
Heart & Blood Vessels
Abdomen
Genitourinary Metabolic
Spine, Pelvis, Sacroiliac & Lumbosacral Joints
Extremities
Nervous System
Skin
Other Defects

Physical Fitness Record

Refuge Name: ____________________Org. Code:___
Name: ______________________________
Pre-Test questions to be answered by each employee.

1. Have you had an arduous duty physical within the past three (3) years? Yes_ No _ (Date:______)

*2. Are you currently in an active physical fitness program? Yes _ No_*

3. Do you have your doctor's approval to begin an active physical fitness program? Yes _ No _

4. Do you have any known physically life threatening or limiting conditions? Yes _No _

5. Have you had coffee, cigarettes, meals, or significant exercise in the past two (2) hours? Yes _ No _

6. Have you had any debilitating illness, such as the flu, within the past several weeks? Yes _ No _

7. Have you taken any prescription drugs during the past 10 days (i.e., beta blocker heart medications). Yes _ No _

I certify that the above information furnished by me is true and correct to the best of my knowledge.

Employee's Signature: ______________________

***NOTE**: If the answer to either question 5 or 6 is "yes", then the test is rescheduled.*

Tell each employee:

A: "If at any time during the test you experience nausea, extreme fatigue, breathlessness, pounding in the head, or chest pains, stop the test and tell me."

B: "In order to comply with the privacy Act, this record will be filed in a separate medical folder within your personnel folder. Only your name, this date, and your fitness level attained will be supplied to verify your fire qualifications."

Employee's initials: _____

Pre-test Data:

Age __ Sex __ Height (feet) __ (inches) __ Weight _ Blood Pressure (optional) _____

Pre-test pulse (15) seconds _____ Post-test pulse _____

Resultant Fitness Level _____

Test Administered by: _______________Date:____

Physical Examinations for Fire Management Positions

The Office of Personnel Management has concluded that agencies have the right to require physical examinations for positions with specific medical standards or physical requirements. The Fish and Wildlife Service has determined that certain designated fire management positions require physical examinations prior to appointment.

A physical examination is required for all new permanent employees and all seasonal employees assigned to arduous duty as firefighters prior to reporting for duty. A physical examination may be requested for a permanent employee by the supervisor if there is a question about the ability of an employee to safely complete one of the aerobic fitness tests. All new permanent fire funded (91XX) employees are required to have a physical examination. All permanent employees over 40 years of age who take the step test or equivalent to qualify for a wildfire or prescribed fire position are required to take a physical examination before taking the test.

1. Physical examination shall use Standard Form 78 (SF-78), Certification of Medical Examination specific for arduous duty fire suppression activities and Form 1400-108 Physical Requirements for Firefighter and Smokejumper Positions (Supplement to SF-78).

2. All examinations are at government expense and should be charged against the 9110 subactivity.

3. The physical examination required for seasonal refuge law enforcement officers may be substituted for the fire physical examination. Two separate physical examinations are not required.

4. Completed physical examination forms requiring a second opinion are to be submitted through Personnel to the Chief, Division of Medical and Health Services at the Department for certification of an employee's fitness for duty.

Funding for these examinations must be charged against the appropriate primary work element. Each refuge may designate the examining physician, but must offer the individual an opportunity to submit medical documentation from their own personal physician. The Regional Fire Management Coordinator should audit medical examination costs periodically to avoid unnecessary expenditures.

All Fish and Wildlife Service employees considered for firefighting duties will meet the aerobic Standard Step Test or 1-1/2 mile run. When the step test or run is to be given, the Physical Fitness Record will serve as the record that the employee has met the physical requirements as mentioned above. An Emergency Medical Technician (EMT) must be present during administration of the step test or 1.5 mile run.

If the Fire Management Officer or the employee has any question concerning the person's ability to physically perform firefighting duties, the employee should not be qualified for a wildfire or prescribed fire position.

Agency Determined Skill Levels

The following positions are not covered under the Wildland Fire Qualification Subsystem Guide, PMS310-1 (310-1), dated 1993. They have been established to enable the Service to use refuge expertise to continue a safe and effective fire suppression program where (1) the level of qualification established in 310-1 is not necessary and/or (2) technical specialists are available to accomplish jobs otherwise contracted out to private sector.

Incident Commander Type 5
Engine Operator
Dozer Operator
Tractor/Plow Operator
Prescribed Fire Burn Boss Type 3

POSITION: Incident Commander Type 5 (ICT5)

EXPERIENCE: Firefighter (FFT2)

REQUIRED TRAINING: Intermediate Fire Behavior S-290
Fire Suppression Tactics S-336 (or appropriate Strategy and Tactics course after S-336 is phased out.)
Fire Operations in the Urban Interface S-205 (Required if interface situations exist adjacent/on the refuge)

SUGGESTED TRAINING: Initial Attack Incident Commander S-200
Firing Methods and Procedures S-234
Fire Supervision S-201

PHYSICAL REQUIREMENT: Arduous. [Refuges which do not have dedicated fire personnel, normally have a light suppression workload (minimal occurrence and acreage), do not initial attack wildfires using direct attack with handtools, and who have no cooperators/contractors to perform timely initial attack operations on refuge wildfires can request an exception to the physical fitness requirement of Arduous. The request is to be made to the Regional Office and will involve review by the Regional Fire Management Coordinator and approval at the Regional Office level. Exception approvals are to be documented in the refuge fire management plan. See Service Manual 232 FW 6.1 for details. Refuges which demonstrate that an arduous physical fitness rating is not necessary to safely initial attack wildfires may use personnel who qualify at the Moderate rating.]

OTHER POSITIONS THAT MEET CURRENCY REQUIREMENTS: ICT4, ANY SINGLE RESOURCE BOSS

POSITION: Engine Operator (ENOP) Note: Duties of the engine operator are limited to driving the vehicle, operating the pump on the vehicle and using the hard line for vehicle protection.

EXPERIENCE: Firefighter (FFT2)
Experience on engine crew

REQUIRED TRAINING: Intermediate Fire Behavior S-290

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SUGGESTED TRAINING: Tanker Use/Tanker Boss S-214
Driving for Fire Service S-216
Fire Supervision, 2nd edition, S-201

PHYSICAL REQUIREMENTS: Light

OTHER POSITIONS MEETING CURRENCY REQUIREMENTS: ENGB

POSITION: Tractor/Plow Operator (TRPS)

EXPERIENCE: Firefighter (FFT2) AND Certified FWS Heavy Equipment Operator

REQUIRED TRAINING: Intermediate Fire Behavior S-290

SUGGESTED TRAINING: Tractor Use/Tractor Boss S-213 or
Tractor/Plow Boss S-233

PHYSICAL REQUIREMENTS: Light.

OTHER POSITIONS THAT MEET CURRENCY REQUIREMENTS: None

POSITION: Dozer Operator (DOZS)

EXPERIENCE: Firefighter (FFT2) AND Certified FWS Heavy Equipment Operator

REQUIRED TRAINING: Intermediate Fire Behavior S-290

SUGGESTED TRAINING: Tractor Use/Tractor Boss S-213 or
Tractor/Plow Boss S-233

PHYSICAL REQUIREMENTS: Light.

OTHER POSITIONS THAT MEET CURRENCY REQUIREMENTS: None

POSITION: Prescribed Fire Burn Boss Type 3 (RXB3)

EXPERIENCE: Crewmember (FFT2) experience in the NFFL fuel model in which the RXB3 will be working.

REQUIRED TRAINING: Intermediate Fire Behavior S-290 (1993) or S-390 (1981)
Basic Wildland Fire Behavior Calculations S-390 (1993)
Prescribed Fire Planning and Implementation or equivalent.

SUGGESTED TRAINING: Prescribed Fire Monitoring and Analysis RX-290

Ignition Specialist RX-230
Prescribed Fire Burn Boss RX-300

PHYSICAL REQUIREMENTS: Moderate. Exceptions to the standard are necessary when a refuge analysis of prescribed fire operations reveals that terrain, tactics and fuels present require physical fitness standards either more or less restrictive than a "Moderate" standard for a specific prescribed fire project. Refuge personnel will meet the highest physical fitness category required to safely conduct prescribed fire operations on the refuge, determined by terrain, tactics and fuels.

OTHER POSITIONS THAT MEET CURRENCY REQUIREMENTS: None.

1.5.2 SAFETY OPERATIONS

Responsibilities

The goal of the fire safety program is to provide direction and guidance for the safe and effective management of fire incidents. Safety is the responsibility of everyone assigned to a wildland or prescribed fire incident. Safety is an attitude which must be promoted at all operational levels from the Director to the agency administrators (refuge managers) and employees in the field. The safety of employees and visitors alike must be of prime concern during fires. Agency administrators at all levels need to stress that firefighter and visitor safety always takes precedence over property and resource loss.

In addition to this guideline agency administrators, program managers and fireline supervisors need to be familiar with the safety considerations and procedures found in the following documents:

1. National Wildfire Coordinating Group (NWCG) 410-1 Fireline Handbook.

2. Service Manual

Training and Qualifications

Leadership Requirements. Knowledgeable leadership is a significant safety factor when dealing with fire. Experience, training, and physical fitness are required of all people in leadership roles in fire operations. Sufficient knowledge is necessary for managers to protect themselves, their crews and the resources of the refuge.

Standards. The training program and the qualification and certification process are the foundations of the safety program. Only fully qualified personnel will be assigned fire duties. All fire personnel, whether on wildfires or prescribed fires, must meet Fish and Wildlife Service qualifications for their fire job.

1. Trainees. All trainee assignments are to be closely supervised by an individual fully qualified for the position. This is critical due to hazardous and stressful conditions

present at a fire. Reference should be made to the NWCG Wildland Fire Qualification System for appropriate standards.

2. Minimum Service Standards. All service personnel who perform [illegible] line wildfire suppression (firefighter) or prescribed fire crewmember duties must have the following NWCG courses: S-130 Basic Firefighter and S-190 Introduction to Fire Behavior, or the Service Basic Fire Management Training. If Standards for Survival was not included in S-130, the course, the course must be taken as a stand-alone 8 hour course. An annual safety refresher course, covering the Standard Fire Orders, 18 Watch Out Situations, and Fire Shelter deployment is required.

3. Emergency Firefighters. Emergency firefighters (those hired on Emergency Employment Time Slips [OF-288]) should be used only in situations where regular firefighters are not available. Under no circumstances shall these individuals be hired and assigned to fire duty without fully qualified supervision. Emergency firefighters must pass the step test or complete a 1.5 mile run with a score of 45 or better as a condition of employment before being placed on the fireline. In addition, energency firefighters must attend S-130 and S-190.

   The practice of hiring personnel off the streets in nearby communities and placing them on firelines without meeting these provisions is strictly prohibited.

Field Operations

Briefings. The refuge manager, through the incident commander (IC) of an incident management team, must ensure that safety factors are covered with incident personnel at all operational briefings, and that safety briefings are occurring throughout the fire organization. The identification and location of escape routes and safety zones must be stressed. The IC, safety officer, fire behavior analyst, and remainder of the command and general staff should use fire orders and "watch out" situations for guidance at strategy meetings, during briefings, and when developing the incident action plan, safety message, and medical plan.

Fire Orders. The "10 Standard Fire Orders", "18 Watchout Situations", and "Common Denominators of Fire Behavior on Tragedy Fires" follow.

All fire suppression actions must be under taken in compliance with "18 Watchout Situations". If any proposed suppression action would be in conflict with ANY "Watchout Situations", ALL of the "Standard Fire Orders" must be able to be complied with or the proposed suppression action revised accordingly.

FIRE ORDERS

F **Fight fire aggressively but provide for safety first.**
I **Initiate all action based on current and expected fire behavior**
R **Recognize current weather conditions and obtain forecasts.**
E **Ensure instructions are given and understood.**

O **Obtain current information on fire status.**
R **Remain in communications with crew members.**
D **Determine safety zones and escape routes.**
E **Establish lookouts in potentially hazardous situations.**
R **Retain control at all times.**
S **Stay alert, keep calm, think clearly, act decisively.**

WATCH OUT SITUATIONS

1. Fire not scouted and sized up.
2. In country not seen in daylight.
3. Safety zones and escape routes not identified.
4. Unfamiliar with weather and local factors influencing fire behavior.
5. Uninformed on strategy, tactics, and hazards.
6. Instructions and assignments not clear.
7. No communication link with crew members or supervisor.
8. Constructing line without safe anchor point.
9. Building fireline downhill with fire below.
10. Attempting frontal assault on fire.
11. Unburned fuel between you and fire.
12. Cannot see main fire, not in contact with someone who can.
13. On a hillside where rolling material can ignite fuel below.
14. Weather becoming hotter and drier.
15. Wind increases and/or changes direction.
16. getting frequent spot fires across line.
17. Terrain and fuels make escape to safety zones difficult.
18. Taking nap near fireline.

COMMON DENOMINATORS OF FIRE BEHAVIOR ON TRAGEDY FIRES

- **Most incidents happen on the smaller fires or on isolated portions of larger fires.**

- **Most fires are innocent in appearance before the "flare-up" or "blow-ups." In some cases, tragedies occur in the mop-up stage.**

- **Flare-ups generally occur in deceptively light fuels.**

- **Fires run uphill surprisingly fast in chimneys, gullies, and on steep slopes.**

- **Some suppression tools, such as helicopters or air tankers, can adversely affect fire behavior. The blasts of air from low flying helicopters and air tankers have been known to cause flare-ups.**

Safety Officers. At least one safety officer should be assigned to a fire when any of the following conditions exist:

1. There is complex or critical fire behavior.
2. There is a complex air operation.
3. The fire is in an urban interface.

Safety officers (and all other personnel) are authorized to exercise emergency authority to stop and prevent unsafe acts.

Additional safety assistants with functional expertise in areas such as logistics and aviation should be ordered as required by the complexity of the incident.

When encountering hazardous materials on an incident, the supervisor should ascertain whether suppression action is necessary in light of the added risk. The supervisor should keep his or her subordinates clear of the area and immediately notify the safety officer. Where it is necessary to go into a hazardous area to protect human lives, the work group should be given clear and direct instructions on the use of necessary and applicable personal safety equipment and proper actions and movements while they're exposed to the hazard.

Temporary closure of a refuge, or a portion of it, should be exercised when large or erratically behaving fires are present. When a fire threatens escape from the refuge, adjacent authorities should be given as much advance notice as possible in order to achieve orderly evacuation.

Evaluations. Evaluations are to be completed for all resources (crews, engines, aircraft, dozers, overhead) assigned to an incident at the completion of the incident. Attention to safety factors is critical to the evaluation process. These evaluations must be honest appraisals of performances. The documentation of sub-standard or unsafe performances is mandatory.

Aviation

Fixed wing aircraft and helicopters are valuable resources for wildland fire suppression. Aircraft serve as a suppression tool or as a platform well above a fire allowing the incident commander the opportunity to observe the fire situation quickly and completely. Suppression strategies can then be established that conserve resources and prevent placing personnel and equipment in hazardous positions.

Aircraft are available for either fire related or other wildlife management purposes. The Office of Aircraft Services (OAS), Department of the Interior, inspects aircraft and approves pilots used on contracts and rental aircraft agreements.

1. Fish and Wildlife Service stations may use pilots approved and certified by the OAS for specific missions without reinspection if the pilot holds one of the following OAS cards:

    a. Form OAS-30A, Pilot Qualification (Airplane).

    b. Form OAS-30B, Pilot Qualification (Helicopter).

    c. Form OAS-30C, Airtanker Pilot Qualifications.

2. Fish and Wildlife Service stations may use pilots with OAS approval for point-to-point transportation regardless of the specific type of approval document.

3. For other than point to point operations, be sure to look at the back of the Airplane Pilot Qualification card (OAS-30A) or Helicopter Pilot Qualification card (OAS-30B) for operational restrictions.

The OAS inspects and approves aircraft used on contract and rental agreements.

1. Fish and Wildlife Service stations may use an aircraft approved by the OAS for specific missions without reinspection if they have one of the following OAS cards:

    a. Form OAS-36A, Aircraft Data Card (Fixed-wing).

    b. Form OAS-36B, Aircraft Data Card (Helicopter).

    c. Form OAS-36C, Aircraft Data Card (Airtanker).

    d. Form OAS-47 EDP, Aircraft Data Card, rental use only, not for special use or contract (point to point).

2. Fish and Wildlife Service stations may use OAS carded aircraft for point-to-point transportation regardless of the specific type of approval document.

3. For other than point to point operations, be sure to look at the Aircraft Data Card (OAS-36A or B) for operational restrictions.

An approved list of certified aircraft is issued periodically by the OAS which provides vendor information, aircraft types, aircraft capabilities, and hourly rates.

If no approved aircraft are available, it is necessary to submit a Request for Rental Services form (OAS-20), to the OAS. This can be accomplished by contacting OAS at the National Interagency Fire Center (NIFC) or through your Regional Aircraft Manager or Fire Management Coordinator. However, both aircraft and pilot must be certified through OAS. This process can be time consuming depending on the number of requests OAS has on file. Sufficient lead time (2 to 6 months) must be allowed to ensure availability when needed. It is also permissible to use Forest Service certified aircraft and pilots.

Helicopters are employed in aerial prescribed burn operations with the helitorch or ping-pong ball ignition devices. Use of helicopters allows the ignition of large blocks of fuel quickly and precisely with more efficiency and safety than a ground crew in the same fuel type.

There are specific guidelines and training requirements that must be followed when using a helicopter mounted ignition device. The Helitorch Operations Guide, produced by OAS, provides necessary guidance. Ground crew and aircraft certification for the use of fixed and rotary wing mounted aerial ignition devices is required.

When contract aircraft are being used for wildlife management or wildfire operations, managers are responsible for the accurate completion of the Aircraft use report (OAS-23). Each station has a designated "Billee" code that has been assigned by OAS to that Station. This Billee code must be identified on the OAS-23. The Regional Aircraft Manager or Fire Management Coordinator should be contacted to obtain this code.

Completed OAS-23 forms should be sent to the Regional Fire Management Coordinator or Regional Aircraft Manager, depending on regional policy, who in turn will transmit them to OAS.

Vehicles

Managers and fire program supervisors will ensure that all vehicles meet GSA and agency safety standards. All vehicles employed on incidents will be provided with a safety inspection appropriate to their use and prior to their release. Drivers will comply with Interstate Commerce Commission rules for maximum driving hours within a 16-hour work day. These require that bus drivers (drivers of personnel) may drive no more than 10 hours per day, followed by eight mandatory off-duty hours, and that truck drivers (drivers of cargo) may drive no more than 12 hours per day, followed by eight mandatory off-duty hours.

Engine Operation - All engine units will not operate at more than the gross vehicle weight.

Engine Driving - All engine operators will meet Fish and Wildlife Service minimum skill and training requirements for specific vehicle classifications.

1.5.3 EQUIPMENT

Personal Protective Equipment. It is mandatory that all firefighting personnel be equipped with the proper personal protection equipment (PPE); operational personnel on wildfires and prescribed fires are required to use PPE. Common permanent-press materials are not to be worn, as they melt and stick to the skin when exposed to flame or heat. Mandatory PPE includes:

1. 8" high laced leather boots with lug soles
2. fire shelter
3. hard hat with chin strap
4. goggles
5. ear plugs
6. aramid shirts
7. aramid trousers
8. leather gloves
9. individual first aid kits

Special PPE and hazard analysis is required for operations involving alum-gel, aircraft (particularly helicopters), and felling. These include:

1. Chainsaw chaps

2. Earmuffs
3. Face shield
4. Crash helmet
5. Dust masks
6. Spark resistant clothing
7. Respirators suitable for powders as alum-gel

Use

Use of safety equipment is required of all personnel exposed to fireline hazards including prescribed fire operations. Employees must be trained to use safety equipment effectively.

Head Protection. Personnel must be equipped with hard hats and will wear them at all times while on the fireline. Hard hats must be equipped with a chin strap which will be fastened while riding in, or in the vicinity of, helicopters.

Helicopter crewpersons and helitack crews will be issued and wear crash helmets with chin strap securely fastened when riding in helicopters. All contract helicopter personnel, including mechanics, must comply with this standard.

Metal hard hats will not be worn. Hard hats must meet ANSI Standard Z89.2-1986 for penetration protection, and ANSI Standard test for 20,000 volt electric non-conductor. The "Helmet, safety, wildfire" NSN 8415-01-055-2265 listed in GSA's Wildfire protection Equipment and Supplies Catalog meets these standards. Only this helmet is acceptable for fireline use.

Eye and Face Protection. The following positions require the wearing of goggles: nozzleman, chainsaw operator, heliport and ramp personnel, and retardant mixing crewmen. Other personnel in the immediate vicinity of these operations may also require eye protection. Full face protection offered by face shields must be worn by tool sharpeners using power sharpeners and terra-torch nozzle operators.

Hearing Protection. Personnel who are exposed to a noise level in excess of 90 db must be provided with, and wear, hearing protection. Seasonal fire crew members must be issued two pairs of earplugs, either universal or fitted type, at the beginning of the fire season. Other fire crew members must be issued earplugs upon fire assignment. Personnel must be trained in the use and cleaning of earplugs to prevent hearing damage and hygiene problems.

Earmuffs will be issued to the following positions:

- Chainsaw and portable pump operators
- Heliport and aircraft ramp personnel
- Retardant mixing crewmen
- Any other personnel exposed on a regular basis to damaging noise levels. Intermittent saw and pump operators may use earplugs.
- Engine operators.

National Fire Equipment System kits contain earmuffs for the above positions. Any kits maintained on refuges for these positions must also comply with the kit's hearing protection standards.

Body Protection. Employees engaged in wildfire suppression or prescribed fire operations must wear fire resistant clothing consisting of aramid shirt, aramid trousers, or coveralls and leather gloves. Because most man-made fibers melt when exposed to flame or extreme radiant heat, personnel should wear only undergarments made of 100 percent cotton or wool, aramid, or other fire resistant material. **Under no conditions will the Fish and Wildlife Service uniform be worn under fire resistant clothing.** Fixed and rotary wing aircraft crews and aircraft support personnel must wear all aramid outer clothing and gloves or leather gloves. Wool and/or cotton outer garments are not acceptable for aircraft use.

Personnel working in helitorch operations must wear fire resistant synthetic fiber clothing with an anti-static finish to reduce the possibility of flash fires. Clothing that becomes sprinkled or soaked with fuel must be thoroughly rinsed with water prior to removal and the individual must be grounded to dissipate any potential static buildup. One person must standby with a fire extinguisher while the individual removes contaminated clothing.

Leg Protection. Chainsaw chaps must be worn by all chainsaw operators. Pants should be bloused or secured at the ankle if there is danger from burns by stepping in ash pits.

Foot Protection. Personnel assigned to fires must wear heavy duty, all leather, lace type work boots with non-slip (Vibram type) melt resistant soles and heels. The leather top must be at least 8 inches in height, measured from the top of the heel. Permanent, temporary and seasonal Fish and Wildlife Service personnel will be provided with these boots from station funds not more often than every three years. Emergency or casual fire fighters will provide their own boots. Some refuge situations may require special footwear such as waders, hip boots, snake boots, etc.

Fire Shelters. Fire shelters will be issued and worn by all line personnel. They will be inspected regularly, and "training" shelters will be deployed annually at required refresher safety training. The shelter is to be viewed as a last resort, and will not be utilized as a tactical tool. Supervisors and firefighters must never employ fire shelters instead of using well-defined and pre-located escape routes.

All shelter deployments, as defined in the Wildfire Suppression Operations Handbook will be investigated and reviewed. That chapter provide specific guidance in conducting and documenting reviews.

Firing Equipment. A firing plan with an adequate job hazard analysis approved by the operations section chief, safety officer, and fire behavior analyst, is required prior to utilizing firing equipment with mass ignition capabilities, and/or when using fireline explosives.

1.5.4 STRUCTURAL FIREFIGHTING

Fish and Wildlife Service wildland fire management personnel are neither trained or qualified in structural firefighting. Structural firefighting is not the functional responsibility of the Fish and Wildlife Service. This includes structures owned by the Fish and Wildlife Service. Cooperative agreements with local structural fire departments should be pursued for protection of Fish and Wildlife Service owned structures.

Fish and Wildlife Service assistance in structure protection should only be performed on an emergency basis to save lives or to keep the fire from spreading to Fish and Wildlife Service lands. Fish and Wildlife Service suppression personnel will be made aware of safety hazards associated with suppression activities around structures and transportation systems.

With increasing numbers of people moving into rural areas, the Fish and Wildlife Service recognizes that structural suppression activity in wildland areas has a potential to involve agency personnel. The following guidance is provided to address these situations.

1. Structural fire protection action will only be taken in situations involving a threat to human life. Fish and Wildlife Service fire personnel may, however, assist in protecting wildlands around the structure when such action can be accomplished safely.

2. Cooperative agreements will not commit Fish and Wildlife Service personnel to structural fire suppression.

3. Water or retardant chemicals may be applied to a building from the outside in an effort to safeguard it from advancing wildfire.

1.6 FINANCIAL MANAGEMENT

1.6.1 INTRODUCTION

This chapter describes in detail the various Fish and Wildlife Service fire management accounts. Program managers, Regional Fire Management Coordinators (RFMC), and Fire Management Officers (FMO) must be aware of the operation of and the responsibilities and limitations on the use of preparedness, fire use and management, operations, and emergency rehabilitation funding.

Particular attention should be paid to the procedures and limitations applicable to the use of emergency funds used in wildland fire operations and emergency rehabilitation. When funds from these accounts are being utilized, it is imperative that the program manager, RFMC, FMO and IC ensure that proper administrative procedures are followed from the beginning of the incident until its conclusion.

On a wildfire suppression effort, for example, the IC initially exercises all administrative responsibilities with support from the refuge administrative staff. If the size of the fire grows, many of these functions are delegated to specific Incident Command staff members as the incident staffing increases. It is the responsibility of the IC to ensure that the staff is expanded sufficiently to meet the administrative workload and thereby provide adequate availability of resources, accountability and cost efficiency.

In addition to the efficient handling of all incident related administrative functions, the IC is responsible to the refuge manager for the efficient and proper expenditure of funds in order to achieve the fire suppression objectives. The refuge manager is still the responsible line officer for all actions on the incident.

Funding for fire management activities is provided through the annual Department of Interior wildland fire appropriation. The appropriation may be supplemented by the emergency authority provisions of Section 102 of the Department of the Interior. Fire management funds are no-year funds which are distributed to the regions.

1.6.2 FINANCIAL MANAGEMENT

Base Eight for Firefignting Activities

Personnel costs for emergency wildfire responses are charged to a specific fire number which becomes a fire project code when activated through the Denver Finance Center. All emergency time worked by employees regularly paid from 1261 funds will be charged to the fire number or emergency presuppression using emergency subactivity code and incident number: base eight, overtime and hazard or environmental differential premiums. However, the base eight hours for personnel whose regular salary is paid out of 9110 or 9120 will remain charged to their regular funding source (i.e., 9110 or 9120) with appropriate incident number assigned in lieu of the normal project code. Only their overtime and hazard or environmental differential will be charged to the fire number or emergency presuppression number with the appropriate emergency subactivity code (9231 or 9232).

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Fire Account Monitoring/Review Procedures

The Fire Management Branch and the Regional Offices will monitor fire accounts to insure that expenditure targets are being met and that expenditures are for legitimate fire management activities as defined for various Subactivities in this chapter.

Refuges will be reviewed every two, three, or four years, depending on the level of funding within that refuge. The Fire Management Branch will set this level each year and will notify regional offices accordingly. From this information, regional offices will compile a list of refuges to be reviewed each fiscal year. These reviews will be conducted by either the Fire Management Branch, the regional offices, or both. Refuges should be monitored more frequently than the standard schedule if known problems exist or if they have been directed to take corrective action in response to past reviews.

The Fire Management Branch will also compile a list of regional offices to be reviewed each fiscal year.

Fire Accounts

Fish and Wildlife Service funding for fire management is found in: 1260, 9100 and 9200 activities. Preparedness costs are funded under 9110. Funding for the use, management, manipulation and ecological monitoring of fire comes from either Fire Use and Management (9120) or Refuge Operations and Maintenance (1260). Funding for emergency operations including rehabilitation comes from the 9200 activity and is based on historical fire occurrence data.

To ensure proper accountability and to establish a record of use for 1261, 9110 and 9120 fire expenditures, the following coding procedure will be used with all project numbers. **Each Region will have the ability to establish a project number that will be unique to that Region by replacing the fourth digit of the project number with that Region's numerical designator. For example Region 1 would use numbers 1001, 2001, 3001, etc. in conjunction with the unit's organization code and appropriate subactivity number.**

The Program Specialist for Fire Management Branch in the Division of Refuges is responsible for activating subactivities and project numbers within the Federal Financial System (FFS) for the Resource Management Appropriations, subactivity 1261, and for the Fire Protection subactivities 9110 and 9120. This is to be done by October 1 of each new fiscal year.

The 9100 funding will fund **ONLY** fire management related issues: program management, presuppression, preparedness, and fire use.

Activity, 9200 is established to pay for actual wildland fire operations costs (suppression, emergency presuppression, severity, prescribed natural fire incidents) as well as rehabilitation costs.

It is of the utmost importance to use the funding as restricted by Congress in Public Law 101-121, (103 Stat. 701) and subsequent appropriations passed by Congress. The major concern is the potential use of emergency funds for nonemergency purposes.

1.6.3 ACCOUNTING

An accounting system is currently in place under the Federal Financial System (FFS). This system utilizes a number of codes for 1260, 9100 and 9200 funding. The codes are listed below with explanations and examples. Project coding definitions can be found in 1.6.4.

Fire Protection: 9100

SUBACTIVITY: 9110 - Preparedness

> These funds provide for the overall management and planning of the Fish and Wildlife Service's fire management program and to prepare for the annual wildfire season. Normal presuppression includes all activities undertaken in advance of fire occurrence to help ensure more effective fire suppression including establishment and funding of interagency presuppression agreements.

1. Appropriate Uses.
    - A. Program oversight and management at the refuge, regional, and national offices, particularly those activities not associated with preparedness for expected annual fire season workloads.
    - B. Staffing.
    - C Interagency cooperative fire planning and management.
    - D. Prevention and presuppression.
2. Appropriate Expenditures.
    - A. National and Regional Activities.
        1. National and regional fire prevention activities.
        2. Support for interagency coordinating groups, such as the National Wildfire Coordinating Group, Regional Coordination Centers, and the Alaska Interagency Fire Management Council.
        3. Travel for program oversight and review by national and regional staff.
        4. Printing catalogues and handbooks.

5. Support for national and regional task groups.

6. Purchase of accountable office equipment except computers.

B. Presuppression Operations

1. Salaries and premium pay for personnel as authorized by the FIREPRO analysis for wildfire suppression preparedness. Employment may extend only for the period of the fire season, or an extended period to cover prescribed burning season if specifically authorized by the FIREPRO analysis.

2. Fire prevention activities, including:

   a. Prevention displays.
   b. Publicity exhibits.
   c. Educational activities.
   d. Purchase of prevention materials.
   e. Spark arrestor inspections.
   f. Prevention patrols.
   g. Enforcement of burning regulations.
   h. Travel associated with prevention activities.

3. Fire detection activities, including:

   a. Infrared detection.
   b. Electronic detection.
   c. Ground detection patrols.
   d. Routine aerial reconnaissance on a fixed schedule.

4. Equipment readiness, including:

   a. Supplies and equipment, including personal protective equipment.
   b. Rent and lease of equipment and vehicles.
   c. Vehicle maintenance.
   d. Equipment maintenance

5. Operational support including:

   a. Arduous duty physical examinations for temporary personnel hired for suppression duty
   b. Arduous duty physical examinations for permanent personnel who will fill red card position which has an aerobic fitness level.
   c. Warehousing and fire cache operations.
   d. Dispatching/logistical center operations.

        e. Rent and utilities for fire offices.
        f. Purchase and maintenance of weather station equipment.
        g. Remote sensing when used for fire or lightning detection.
        h. Travel associated with management of a presuppression program or cooperative fire management activities.

    6. Fire aviation operations, including:

        a. Heliport operations.
        b. Aircraft availability contracts.
        c. Aircraft inspections.

    7. Communications, including:

        a. Maintenance of radio, telephone, data communications, and recording equipment.
        b. Rental and lease of such equipment.

    8. Clerical support, including:

        a. Salaries and premium pay for temporary clerical personnel authorized by the FIREPRO analysis.
        b. Office supplies.
        c. Rental or lease of accountable office equipment.

C. Training:

    1. Training for fire overhead positions associated with 400, 500, and 600 level suppression courses or national and regional prescribed fire courses.

    2. Local or regionally sponsored training of firefighters and organized crews in 100, 200, and 300 level courses, and local or regionally sponsored training of prescribed fire personnel.

    3. Travel associated with any of the above training.

    4. Purchase of training materials.

    5. Development of training courses.

D. Capital Equipment: Purchase of capital equipment used for wildfire and hazard reduction prescribed burning. Includes items such as fire engines, dozers, tractor plow units, RAWS, pumps, and computers. Annual purchase authority is delegated to the regions (RFMC) with the Fire Management Branch conducting reviews.

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E. Interagency Fairshare

1. Fairshare contributions for interagency shared resources.

2. Operation of the wildland fire computer system and national communication systems such as GEONET and WIMS.

F. National Computer System Operations (FMIS)

1. Operation of the Fire Management Information System.

2. Operation of data communication systems, including Tymnet, Geonet and WIMS.

3. Contract software development and systems management at the Fire Management Branch.

G. Staffing.

1. Salaries for permanent, collateral-duty or temporary staffing that provide planning and oversight functions for fire management programs at refuges, regional offices, and the Fire Management Branch. Permanent and collateral-duty positions must be justified by the FIREPRO analysis and approved by the region.

2. Budgeted overtime and premium pay for permanent FIREPRO personnel not involved in wildfire suppression, or prescribed fire project.

3. Prohibited Uses.

A. Funding non-fire positions and related work.

B. Management ignited or prescribed natural fire incidents.

SUBACTIVITY: 9120 - Fire Use and Management

This subactivity provides funding to conduct management ignited prescribed fires, fuels management operations, monitoring and evaluating the results of ecosystem maintenance burning, and general management of a prescribed natural fire program as outlined in a refuge's approved Fire Management Plan.

1. Appropriate Uses.

A. Planning and implementation of management ignited prescribed fires for fuels reduction and resource enhancement and other hazardous fuel reduction projects.

B. Monitoring and evaluating the ecological affects of fire.

C. Planning, preparation and evaluation of prescribed natural fire programs.

2. Appropriate Expenditures

A. Management ignited prescribed fire.

1. Regular and premium pay for permanent and temporary personnel involved in management ignited prescribed fire monitoring and management actions as outlined in an approved Prescribed Burn Plan.

2. Burn unit plan preparation.

3. Burn unit site preparation and prescription monitoring.

4. Rental or lease of equipment.

5. Aircraft services for ignition and monitoring.

6. Travel, per diem and logistical costs of personnel associated with the planning, execution and review of prescribed fires.

7. Purchase of supplies used to plan or carry out prescribed fires.

8. Repair of existing accountable equipment.

B. Prescribed natural fire.

1. Base salaries, benefits and support for permanent and temporary personnel employed to manage prescribed natural fires by monitoring, performing holding actions and preparing documentation.

2. Basic support costs for monitoring and management, such as vehicle rental, supplies and equipment.

C. Short and long-term monitoring, evaluation and ecological studies of fire effect.

3. Prohibited Uses

1. Confine, contain, or control actions on fires that have exceeded prescription.

2. Purchasing of supplies that would normally be funded by fire accounts, e.g. NUS supplies, interpretative materials.

3. Activities not covered in an approved Fire Management Plan.

4. Operations costs of managing each prescribed natural fire.

Emergency DOI Firefighting Fund: 9200

SUBACTIVITY: 9230 - Operations

The 9230 subactivity is used by the Fish and Wildlife Service as a means of tracking (rolling-up) wildfire suppression costs within the Federal Financial System (FFS). All costs associated with Operations will be charged to 9231 (Wildfire Suppression - Refuge Fires or Emergency Presuppression), 9232 (Interagency Response/Coordination), or 9233 (Severity).

These funds provide for all aspects of suppressing a wildfire, managing a prescribed natural fire, emergency presuppression, or escalated presuppression funding based on abnormally extreme fire potential (Severity funding). Includes costs of firefighters and support personnel, supplies, equipment rental, replacement of lost or damaged capitalized equipment, contracts for goods and services, dispatch and logistical support, immediate measures taken to correct damages resulting from the fire suppression effort, and any suppression cost recovery efforts. Severity funding (9233) includes any costs authorized in a severity funding request that is initiated by the Regional Director and approved by the Director, Fish and Wildlife Service. All 9233 charges require use of an incident number assigned by the Division of Refuges, Fire Management Branch.

SUBACTIVITY: 9231 - Wildfire Suppression (REFUGE FIRES), Emergency Presuppression or Prescribed Natural Fire Incidents

Wildfire Suppression (REFUGE FIRES)

All wildfires on Fish and Wildlife Service lands will receive a Incident Number that is assigned through the Fire Management Information System (FMIS), Fire Occurrence Subsystem. These numbers will be region specific and tracked within FFS. 1.6.5 contains further information on incident numbers.

Region Incident Number

Region 1...1010-1999
Region 2...2010-2999
Region 3...3010-3999
Region 4...4010-4999
Region 5...5010-5200, 5210-5300, 5310-5999
Region 6...6010-6500, 6510-6999
Region 7...7010-7999

Region 9...9010-9999

Emergency Presuppression

During the fire season there will be short term weather events and increased human activity that increase the fire danger beyond what is normal. These types of occurrences cannot be planned or budgeted for as part of the normal fire season. Preparedness planning may call for movement of additional firefighting resources into the area or lengthen the duty day to provide extended initial attack coverage. The duration of this type of event may be from one to a few days and can occur several times during the fire season. The triggering of emergency presuppression funding is the refuge Step-Up Plan and should not be confused with reason for using severity funding which is justified by prolonged environmental problems.

The decision to use emergency presuppression funds is made at the refuge level with notification to the Regional Fire Management Coordinator. Authorization for use of emergency presuppression funding will be found in an approved refuge Step-Up Plan when staffing classes reach level 4 or 5. If a refuge Step-Up Plan is not complete, the RFMC will establish interim guidance for initiating emergency presuppression. Funding to cover these costs will come from the subactivity 9231 since the reason for incurring increased costs over what is normal is due to potential risk. The frequency and use of emergency presuppression funding will be documented through the use of the following project numbers:

Region	Project Number
Region 1.......	PE01
Region 2.......	PE02
Region 3.......	PE03
Region 4.......	PE04
Region 5.......	PE05
Region 6.......	PE06
Region 7.......	PE07
Region 9.......	PE08

Organization code - 9231 - PE0X

Prescribed Natural Fire Incidents

Includes the cost of monitoring or management actions on each prescribed natural fire incident, exclusive of 9110 and 9120 funded base salaries, benefits and support. All charges must be made to a unique account number for each prescribed natural fire no matter the size, for tracking purposes. Every prescribed natural fires will receive an Incident Number that is assigned through the Fire Management Information System (FMIS), Fire Occurrence Subsystem. These numbers will be region specific and tracked within FFS. 1.6.5 contains further information on incident numbers.

1. Appropriate Uses.

   A. Confine, contain and control actions against wildfires, including prescribed natural fires and management ignited prescribed fires that have exceeded prescription and have been declared a wildfire.

   B. Prescribed natural fire incidents including funding for monitoring or management actions on each prescribed natural fire incident, exclusive of base salaries, benefits and support.

   C. Emergency presuppression actions carried out in response to an approved Step-Up Plan.

2. Appropriate Expenditures.

   A. Regular (other than 9110 or 9120 personnel), overtime and other premium pay for all personnel engaged in fire suppression or support for fire suppression activities or personnel involved in Step-Up Plan activities.

   B. Overtime and other premium pay for all personnel engaged in prescribed natural fire incidents.

   C. Travel and transportation costs associated with:

      1) Positioning initial attack personnel.
      2) Positioning organized crews.
      3) Positioning aircraft for initial attack.
      4) Transportation of equipment and supplies.
      5) Positioning overhead teams.

   D. Positioning of forces for a specific fire.

   E. Hiring of emergency firefighters until the additional workload created by the wildfire has been reduced to a level that can be managed with regular permanent and seasonal staff or to meet Step-Up Plan needs.

   F. Supplies required for specific suppression actions.

   G. Emergency equipment leases/contracts for the duration of a specific fire or to meet Step-Up Plan needs.

   H. Aircraft costs associated with a specific fire or to meet Step-Up Plan needs.

   I. Repair and maintenance of equipment used on a fire.

J. Replacement of equipment destroyed or consumed on a wildfire. Accountable equipment lost, damaged or destroyed on a wildfire may be replaced only if it has been approved under Board of Survey procedures (23 AM 9.11). When the Board of Survey has completed the investigation and made their final findings and determinations, the report of Survey will be forwarded to the Fire Management Branch for review and subsequent approval by the Washington Office Reviewing Authority.

K. Meals and lodging directly related to wildfire suppression.

L. Travel and other costs associated with fire reviews.

M. Documentation of fire extent and effects directly related to a specific wildfire and carried out within one year of the date the fire is declared out.

N. Emergency evacuations of visitors, residents, or other personnel at risk from wildfire.

O. Payments to suppression cooperators under interagency agreements.

P. Wildfire cause determination and arson investigation.

Q. Monitoring required for daily line officer certification that the fires are within prescription.

R. Damages to resources caused by suppression actions will be mitigated or repaired prior to complete fire demobilization when possible. Such actions are considered part of the suppression cost and are chargeable to the specific fire through the use of 9231 subactivity only.

Damage or destruction to physical or capital improvements resulting from suppression actions should be charged against the specific fire through the 9231 subactivity. A rehabilitation plan is not required damage resulting from suppression actions but certain approvals and concurrences are required before repair.

Costs associated with immediate actions taken to repair damages caused by direct suppression activities are included as direct charges to the fire. These include, but are not limited to, repair of firelines and fuel breaks; authorized replacement of improvements, facilities or structures that were damaged as a result of a suppression action.

Authorized replacement of improvements, facilities or structures damaged due to suppression actions are to be obtained by the Refuge Manager submitting a written request through the Regional Fire Management

Officer to the Regional Director for approval. Depending upon the situation a Board of Survey report may be required. The Service Fire Management Coordinator must concur with the request. The request should include a summary of circumstances leading to the loss or damage, proposed plan to replace or repair the damage and the actual cost or a valid cost estimate. A copy of the request will be forwarded to the Chief, Division of Refuges.

3. Prohibited Uses.

A. Accountable equipment, except as authorized by the Fire Management Branch. Accountable equipment lost, damaged, or destroyed on a wildfire may be replaced only if there is an approved Report of Survey.

B. Base eight salaries, benefits and support for 9110 and 9120 funded personnel during prescribed natural fire incidents.

C. Prescribed natural fire programmatic costs.

D Costs associated with management actions not in the approved FSA.

SUBACTIVITY: 9232 - Interagency Response/Cooperation

This subactivity will track Regional and overall Fish and Wildlife Service costs of providing fire crews and support resources to assist in interagency wildfire suppression efforts. All costs that are associated with the suppression of wildfires OFF Fish and Wildlife Service lands will be charged to this subactivity. An Incident Number will be assigned through the Fire Management Information System (FMIS), Fire Occurrence Subsystem.

Region	Incident Number
Region 1...	1010-1999
Region 2...	2010-2999
Region 3...	3010-3999
Region 4...	4010-4999
Region 5...	5010-5200, 5210-5300, 5310-5999
Region 6...	6010-6500, 6510-6999
Region 7...	7010-7999
Region 9...	9010-9999

1. Appropriate Uses. Confine, contain and control actions against wildfires, including prescribed natural fires and management ignited prescribed fires that have exceeded prescription and have been declared a wildfire.

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2. Appropriate Expenditures.

A. Regular (other than 9110 and 9120 personnes), overtime and other premium pay for all personnel engaged in fire suppression or support for fire suppression activities or personnel involved in Step-Up Plan activities.

B. Travel and transportation costs associated with:

1) Positioning initial attack personnel.
2) Positioning organized crews.
3) Positioning aircraft for initial attack.
4) Transportation of equipment.
5) Positioning overhead teams.

C. Positioning of forces for a specific fire.

D. Hiring of emergency firefighters until the additional workload created by the wildfire has been reduced to a level that can be managed with regular permanent and seasonal staff or to meet Step-Up Plan needs.

E. Supplies required for specific suppression actions.

F. Emergency equipment leases/contracts for the duration of a specific fire or to meet Step-Up Plan needs.

G. Aircraft costs associated with a specific fire or to meet Step-Up Plan needs.

H. Repair and maintenance of equipment used on a fire.

I. Replacement of equipment destroyed or consumed on a wildfire. Accountable equipment lost, damaged or destroyed on a wildfire may be replaced only if it has been approved under Board of Survey procedures (23 AM 9.11). When the Board of Survey has completed the investigation and made their final findings and determinations, the report of Survey will be forwarded to the Fire Management Branch for review and subsequent approval by the Washington Office Reviewing Authority.

J. Meals and lodging directly related to wildfire suppression.

K. Travel and other costs associated with fire reviews.

L. Documentation of fire extent and effects directly related to a specific wildfire and carried out within one year of the date the fire is declared out.

M. Emergency evacuations of visitors, residents, or other personnel at risk from wildfire.

N. Payments to suppression cooperators under interagency agreements.

O. Wildfire cause determination and arson investigation.

3. Prohibited Uses.

A. Accountable equipment, except as authorized by the Fire Management Branch. Accountable equipment lost, damaged, or destroyed on a wildfire may be replaced only if there is an approved Report of Survey.

SUBACTIVITY: 9233 - Severity Funding

Severity funding is escalated presuppression funding based on abnormally extreme fire potential includes any costs authorized in a severity funding request that is initiated by the Regional Director and approved by the Director, Fish and Wildlife Service. All charges in this subactivity require use of an incident number assigned by the Fire Management Branch. See 1.6.6 for guidance on how to request severity funding.

Region	Incident Number
Region 9	9100-9999

1. Appropriate Uses.

Funding is used to improve wildfire initial attack response capability to potentially dangerous situations caused by infrequent climate or weather events such as extended drought or strong windstorms.

2. Appropriate Expenditures.

A. Rental or lease of initial attack equipment.

B. Augmentation of existing fire suppression personnel.

C. Augmentation of normal initial attack capability that is included in the Fire Management Plan.

3. Prohibited Uses.

A. Funding can not be used to restore lost funding resulting from budget cuts or other reductions.

B. Funding can not be used to raise funding levels to meet needs identified in fire management plans.

C. Procurement of accountable or capital equipment without Fire Management Branch approval.

Emergency Rehabilitation: 9240

SUBACTIVITY: 9240 - Emergency Rehabilitation

Fire damages as a result of wildland fires take two forms; suppression damages and resource damages. Suppression damages occur as a result of suppression operations; resource damages are a result of the fire itself. Suppression damages are explained in the section under 9231 funding.

The rehabilitation of damages to the natural resource caused by wildfire will be considered in a fire rehabilitation plan. Any rehabilitation beyond the pre-fire condition to meet management objectives becomes a resource improvement project chargeable to the benefitting activity.

Rehabilitation of habitat damages will be accomplished only to the extent necessary to prevent soil erosion or other degradation of the natural resource. The restoration of habitat to pre-fire conditions is seldom economically or ecologically feasible. All rehabilitation actions funded with emergency fire funding must be accomplished within 2 years of the incident. Actions taking longer will be budgeted for and funded by the benefitting activity.

1. Rehabilitation Plan

A. The rehabilitation plan must be submitted for approval within 90 days following the fire being declared out, in order to qualify for emergency funding status. Costs of restoring burned areas to full productivity are charged to the benefitting activity rather than Emergency Rehabilitation.

B. All plans require approval by the Refuge Manager and the Regional Director that the actions fit resource management objectives. The Regional Fire Management Coordinator must concur that the plan fits the technical definition for use of rehabilitation funds.

C. A copy of the signed plan will be forwarded to the Service Fire Management Coordinator including the cost estimate for budgeting/tracking purposes.

2. Appropriate Uses. Emergency actions to rehabilitate a burned area by preventing land degradation and resource loss or to protect public safety, carried out within two full growing seasons of a wildfire occurrence. All actions must be specified in a rehabilitation plan and approved as identified above.

3. Appropriate Expenditures

   A. Erosion control, including reseeding of burned areas.

   B. Emergency stabilization of fire-damaged structures, i.e., structures may be torn down if they present a danger because they are no longer structurally sound, or the structure may be sealed to prevent theft or further losses. Includes measures to seal and abandon unsafe wells and septic systems, and cleaning-up debris from burned structures.

   D. Immediate actions to evaluate and control the invasion of non-native animals and plants as a direct result of wildfire (may include short-term surveys and action plans, but not long-term monitoring).

   E. Replacement of fencing used to prevent animals or people from entering sensitive areas.

   F. Removal of hazardous trees created by a wildfire.

   G. Mitigation of other immediate safety hazards caused by a wildfire, e.g., repairing or stabilizing bridges, retaining walls and other appurtenant highway structures; clearing erosion debris that covers highways or that blocks culverts. Constructing rock and mud slide diversion and retention structures to protect public safety and structures.

   H. Emergency repair of trails to prevent further damage, such as wash-outs and other erosion damage.

   I. Data recovery and site stabilization on known archeological sites damaged by wildfire or wildfire suppression actions.

   J. Hire of temporary or emergency personnel to carry out the above actions. Emergency hiring authorities may be used to obtain personnel to implement immediate post-fire rehabilitation plans. These hiring authorities are appropriate until such time as temporary personnel can be obtained through normal hiring procedures or until contract services can be obtained.

4. Prohibited Uses

A. Vegetation or wildlife management projects not directly related to fire impacts or confined to a burned area.

B. Short or long-term vegetation or wildlife recovery projects or monitoring activities within a wildfire area but not of an emergency nature.

C. Rehabilitation projects for a single fire extending beyond two full growing seasons.

D. Any other non-emergency actions to restore an area to its pre-fire appearance and function, including restoration of plant and animal populations, and construction of structures and facilities.

E. Purchase of accountable equipment.

Refuge Operations and Maintenance: 1260

SUBACTIVITY: 1261 - Refuge Operations

These funds are provide for resource enhancement activities and can be used for both management ignited and prescribed natural fire and monitoring and evaluating fire effects.

1.6.4 PROJECT CODING

SUBACTIVITY: 9110 - PREPAREDNESS

1000 Administration

All supervisory and support staff contributions assisting in the development and administration of the Fish and Wildlife Service's fire program are included. Examples are budgeting, program evaluation, routine correspondence, incidental travel, etc. Also includes fair share cost of office supplies and equipment used in the support of the Fish and Wildlife Service's fire management program.

2000 Planning

Includes costs associated with the development and review of plans associated the Fish and Wildlife Service's fire management program. Examples are: Fire Management Plans, Fire Dispatch Plans, Preparedness Plans, Prescribed Fire Plans, required environmental documents and Section 7 Endangered Species Consultations dealing with fire issues, etc.

3000 Training

Includes costs of development and scheduling fire related training. Also includes costs incurred by designated fire staff as either student or instructor in training which is designed to develop technical or managerial skills. Examples are Incident (I) and Suppression (S) courses offered through interagency channels.

4000 Interagency Agreements

Includes fair share costs for planning and negotiating interagency agreements and contracts. Includes fair share costs for interagency coordination through the National Wildfire Coordinating Group (NWCG), Interior Fire Coordination Committee (IFCC), Regional Coordination Centers, and Alaska Fire Service (AFS), etc.

5000 Equipment

Includes costs associated with the research and development of equipment used in the Servicewide fire program.

5100 Equipment Purchase

Includes all costs associated with the purchase of fire equipment, both expendable and capitalized, needed to implement an approved Fire Management Plan.

5200 Equipment Rental

Includes all costs associated with seasonal rental of fire equipment identified in approved fire management plans.

5300 Equipment Maintenance

Includes all fair share costs associated with the maintenance of equipment that is used solely in support of the fire program. Maintenance of equipment used for O&M and to support fire management is chargeable during the fire season approved in the Fire Management Plan.

7000 Facility Maintenance

Includes all costs associated with the maintenance of facilities whose sole use/purpose is to support the fire program.

9000 Other

Includes fair share costs not captured elsewhere within the 9110 Subactivity.

SUBACTIVITY: 9120 - FIRE USE AND MANAGEMENT

1000 Administration

All supervisory and support staff contributions incurred during the implementation of the Fish and Wildlife Service's prescribed fire or fuels management program. Includes all costs associated with the collection and analysis of data in order to evaluate fire program.

3000 Training

Includes all costs, other than salaries, of participants as either a student or instructor in prescribed fire related training.

4000 Interagency Agreements

Includes fair share costs for interagency coordination through the National Wildfire Coordinating Group (NWCG), Interior Fire Coordination Committee (IFCC), Regional Coordination Centers, and Alaska Fire Service (AFS), etc.

5100 Equipment Purchase

Includes all costs associated with the purchase of fire equipment, both expendable and capitalized, needed to implement an approved Fire Management Plan.

5200 Equipment Rental

Includes all costs associated with seasonal rental of fire equipment identified in approved fire management plans.

5300 Equipment Maintenance

Includes all fair share costs associated with the maintenance of equipment that is used solely in support of the fire program. Maintenance of equipment used for O&M and to support fire management is chargeable during the fire season approved in the Fire Management Plan.

6000 Fuel Management

Includes costs associated with the assessment and reduction of hazardous fuel levels in order to provide protection of resources, facilities, and adjacent properties through the use of prescribed fire, mechanical, hand, or other means.

6500 Habitat/Ecosystem Management

Includes costs associated with conducting prescibed fire operations to achieve habitat or ecosystem enhancement objectives.

8000 Research, Monitoring and Evaluation

Includes all costs associated with fire research, monitoring, evalution, clinical case study, literature publications and contractor costs.

9000 Other

Includes all fair share costs not captured elsewhere within the 9120 Subactivity.

SUBACTIVITY: 1261 - REFUGE OPERATIONS AND MAINTENANCE

1000 Administration

Includes all supervisory and support staff contributions assisting in the development and administration of prescribed fire (management ignited prescribed fire or prescribed natural fire) program directly related to wildlife habitat or resource management, manipulation and enhancement. Examples are budgeting, program evaluation, routine correspondence, incidental travel, etc. Also includes fair share cost of office supplies and equipment used in the support of prescribed fire for resource management.

2000 Planning

Includes all costs for the planning of resource management prescribed burning program and activities. Examples are: Prescribed Fire Plans, required environmental documents and Section 7 Endangered Species Consultations dealing with prescribed fire for wildlife benefit.

3000 Training

Includes all costs other than salaries of participants as either students or instructors in resource management fire training or development or presentation of Fire Ecology/Fire Effects training. Examples are the Fire Ecology course and Fire in Resource Management (NARTC).

4000 Contracts and agreements

Includes all fair share costs for interagency activities and coordination such as the National Interagency Fire Center, National Wildfire Coordinating Group (NWCG), Interior Fire Coordination Committee (IFCC), Regional Coordination Centers and Alaska Fire Service (AFS), etc.

5100 Equipment Purchase

Includes all costs of capitalized or expendable equipment used primarily for resource management prescribed burning.

5200 Equipment Rental

Includes all costs associated with the rental of fire equipment used in prescribed burning for resource management.

5300 Equipment Maintenance -

Includes all costs for the maintenance of fire equipment used in prescribed burning for resource management.

6500 Prescribed Burning

Includes all personnel and associated costs for the direct application of prescribed burning for resource management. Examples include; salary of burning crew, expendable material and supplies.

7000 Facilities

Includes all costs associated with the construction and maintenance of facilities used primarily in resource management for prescribed burning.

8000 Monitoring and Evaluation

Includes all fire ecology research, clinical case study and literature publication costs. Costs associated with monitoring/evaluation of prescribed burns, including contractor costs.

9000 Other

Includes all fair share costs not captured elsewhere within the 1261 subactivity.

1.6.5 INCIDENT NUMBERS

Emergency Operations 9230 funds are actually coded to one of three subactivities:

9231	Wildfire Suppression, Prescribed Natural Fire operations on Fish and Wildlife Service Property or Emergency Presuppression
9232	Interagency Response/Cooperation
9233	Severity Funding

Each incident is assigned a four digit sequential fire number for specific tracking. This number is generated by the Fish and Wildlife Service's Fire Management Information System. The complete fire number consists of the organization code, followed by the sequential numbers for that region. The actual format for a Fish and Wildlife Service fire number might be:

41570-9231-4087

where 41570 is the organization code for Merritt Island National Wildlife Refuge, 9231 is the cost code identifying an on-refuge wildfire, 4087 is the sequentially assigned fire incident (with the first digit (4) being the Fish and Wildlife Service region).

9240 Emergency Rehabilitation funds must be tied to a specific fire number. Following the example above, if emergency rehabilitation were necessary, the code would look as follows:

41570-9240-4087

where the same sequential fire number is used to track the total costs associated with this fire.

How Cost Coding and Fire Numbers Work in Fish and Wildlife Service. Fire numbers will be generated by the Fire Management Information System. Within the Fish and Wildlife Service, this number then becomes the only fire number used, both for statistics and finances. The numbers generated by the computer will be sequential by Region. For example Region 1 will be assigned 1010 - 1999, Region 2010 - 2999, etc. A new series of numbers will **not** be started over at the beginning of a new fiscal year. Instead, each series will continue until the last number in the block is assigned, i.e. 3999. The numbering will then start over again for that Region.

The Regional Fire Management Coordinator (RFMC) is contacted by the field station notifying him/her of the fire number. For accounting purposes the fire number becomes the field station organization code, followed by 9231 (for an on refuge fire), followed by the FMIS assigned number. For example, if you are in Region 5 and the DI-1202 number assigned by FMIS was 5037, then the accounting fire number will be (station org. code #)-9231-5037. Any Fish and Wildlife Service employee who subsequently is assigned to work this fire will charge to this number with their station organization code inserted instead of the station experiencing the fire. This permits tracking by each specific fire and to each responding station.

When serving on an interagency assist, a slightly different procedure is followed. For example, Region 5's RFMC is contacted by the geographic coordination center asking for a Type II 20 person crew. The RFMC will then open a DI-1202 file as an assisting agency. The computer will assign a number. The resulting fire number will be used by all Fish and Wildlife Service personnel assigned to the Type II crew for internal Fish and Wildlife Service accounting purposes. Following the example above, the actual number charged to would be: (employee's home station org. code #)-9232-5037. The geographic coordination center will have assigned an interagency fire number, different from the one assigned by FMIS, at the time they received a request for assistance. This number is needed for any charges to be managed outside the Fish and Wildlife Service.

If a project size fire occurs on a refuge resulting in an interagency overhead team being assigned to it, things will be different still. Fish and Wildlife Service personnel will follow the procedures as above. Personnel from other agencies, however, will not be using Fish and Wildlife Service cost codes. They will be charging to an agency specific fire number assigned by the dispatching geographic coordination center. This number differs in structure according to what agency is dispatching at the time of the original call for assistance. Using the same example as above, Fish and Wildlife Service personnel will be charging to (employee's home station org. code #)-9231-5037, while all other personnel will be charging to a separate interagency number, unique to this fire.

1.6.6 SEVERITY FUNDING GUIDELINES

Severity funding is escalated presuppression authorization when justified and approved based on an extended period of abnormal fire potential and is used to meet increased presuppression demands. Emergency Presuppression funding (see section 1.6.3) is used to address short term periods of abnormal fire potential and justified through a Step-Up Plan. The authorization is provided to improve wildfire initial attack response capability to potentially dangerous situations caused by infrequent climate or weather events such as extended drought or the accumulation of large amounts of dead and down fuels following wind or ice storms. The authorization is not provided to restore lost funding or to raise funding levels to meet needs identified in fire management plans. Funds are not transferred to the requesting unit but an authorization to expend against a designated limit is given. Severity funding needs should be anticipated as early as possible to allow adequate time for request development and approval. All charges in this subactivity require a project number assigned by the Service Fire Management Coordinator (SFMC).

A. Criteria for severity authorization. Severity authorizations provide for essential presuppression forces and activities when:

1. Unusual weather and fire conditions result in the occurrence, or substantial threat of occurrence, of wildfires with significant damage potential before or after the normal fire season identified in the refuge Fire Management Plan.

2. Weather conditions during the fire season result in a period of fire severity which is, or is anticipated to be, substantially higher than that which normally occurred during the base period used in fire program planning.

B. Authorization process. The Fire Management Officer (FMO) in concert with the Regional Fire Management Coordinator will develop the severity funding package. Once the Regional Director approves the request it will be sent to the SFMC. The SFMC will review the package and prepare a response within 48 hours for the Director's approval. The package will then be sent to the Washington Office, Division of Refuges for the **one week** approval process. The package will be hand carried to the Assistant Director - Refuges and Wildlife, the Assistant Director - Policy, Budget and Administration and the Director. It is the responsibility of each Assistant Director to ensure that the appropriate Divisions be included in the review and approval process.

C. Request content. Requests for changes in hiring dates and/or fire severity authorization shall include the following:

1. A brief narrative statement giving the purpose for the change, the fire problem that exists compared to the normal fire situation, and a description of resources that will be extended. The fire problem should be quantified using appropriate indices, such as the Burning Index or Energy Release Component, and other data as appropriate.

2. A statement of alternatives or adjustments that have been made within Regional capability to help meet needs. This may include options such as additional fire personnel, equipment, detection flights, shifting of resources or funding within the Region.

3. Consequences if the request is not approved. These should include the threat to improvements, non-Service lands, resource damage incurred if additional wildfires occur, and other impacts as appropriate.

4. Amount and proposed use of the requested authorization, including estimated costs, a schedule showing when additional presuppression resources would be hired or put into service, including FTE requirements.

5. Identify the criteria established at the local/Regional level to determine that the need for the additional authorization has ended.

D. Reporting Requirement. When expenditures are made against the severity authorization, the following information will be supplied on a monthly basis. This information will be transmitted through the Regional Fire Management Coordinator to the Service Fire Management Coordinator.

1. Amount expended for the period and the purpose (salary, equipment rental, etc).

2. Balance of severity authorization remaining.

3. Given potential changes in conditions, identify anticipated duration for continued use of the authorization.

1.7 AUTOMATED INFORMATION SYSTEMS

1.7.1 INTRODUCTION

The interagency wildland fire management community has developed a significant array of computer applications which provide analysis and decision support for fire manager/resource manager. This chapter portrays only the applications which the Fire Management Branch supports financially for refuges servicewide. Numerous other computer applications exist which have merit and can be used by refuges, but are not supported by the national office.

The primary systems the Fish and Wildlife Service currently or will soon support for fire management are the Fish and Wildlife Service Fire Management Information (FMIS), Weather Information Management System (WIMS) which replaces the Administrative and Forest Fire Information Management System (AFFIRMS) in 1993, and the National Interagency Fire Management Integrated Database (NIFMID) which replaces the National Fire Weather Data Library (NFWDL) and the National Fire Occurrence Data Library (NFODL), and the Fire Effects Information System (FEIS). Funds for support will be provided by the Fire Management Branch.

1.7.2 FISH AND WILDLIFE SERVICE FIRE MANAGEMENT INFORMATION SYSTEM

The Fire Management Branch has established a time-sharing computer facility for refuges and regions to dial-up and use a variety of fire management applications software developed by the Fish and Wildlife Service and other agencies. The computer system is menu-driven and designed to be user-friendly; it does not require significant computer expertise on the part of refuge users to effectively use the system.

The general applications provided to the refuges on this system include fire weather and occurrence, national interagency incident management, incident reporting, program management, fire training, and aviation. Several of these applications provide or generate data used for FIREPRO and other national analyses. Some programs require periodic inputs by refuges and regional offices.

A User's Guide for the Fish and Wildlife Service Fire Management Information System and assistance for users of the system can be obtained from the Fire Management Branch.

FMIS Modules

FIRE WEATHER	FIRE OCCURRENCE	NIIMS	QUALIFICATION SYSTEM
Weather Station Catalogues	Individual Fire Reports	NIIMS Description	Employee Data Entry
Weather Station OBS Inventories	Occurrence Summary Inquiries	ICS Form Masters	Incident Qualification Cards

Fire Weather Reports	Fire Occurrence Reports	Publication Management System	Qualification Inquiries
NFDRS Graphs	Historical Fire Reports	Resource Identifier Inquiries	Qualification Reports
			Certification/Security Maintenance
			Incident Staffing Needs

FMIS Modules Continued

FIREPRO	FIRE TRAINING	AVIATION
Refuge Planning Master	Training Schedules	Aviation Source List
Permanent Staffing	Training Schedule Reports	Aviation Contact
Initial Attack	Training Materials	
Hazard Fuel Reduction		
RX Natural Fire Monitoring		
Resource Management		
Capitalized Equipment		
Financial Management		
Fire Effects Monitor		
Fairshare Funding		

1.7.3 WIMS

The Administrative and Forest Fire Information Retrieval and Management System (AFFIRMS) has been replaced by the Weather Information Management System (WIMS) and is an interactive time-sharing application maintained by the U.S. Forest Service under contract with a private firm. Fish and Wildlife Service use of WIMS is primarily limited to weather station data entry, daily fire weather observations, and fire weather forecasts, but the system has many other useful features. Documentation for the system will be provided.

All time-sharing costs for use of WIMS are paid by the Fire Management Branch, while local communication costs are paid by refuges.

1.7.4 NATIONAL INTERAGENCY FIRE MANAGEMENT INTEGRATED DATABASE

The National Interagency Fire Management Integrated Database (NIFMID) provides computerized storage of all daily fire weather observations taken by all federal land management agencies. NIFMID is managed by the U.S. Forest Service and is maintained on a Forest Service computer system in Kansas City, MO. All daily weather observations entered onto AFFIRMS/WIMS automatically archived at NIFMID. Weather data from NIFMID is annually added to the Fish and Wildlife Service Fire Management Information System.

1.7.5 FIRE EFFECTS INFORMATION SYSTEM

The Fire Effects Information System (FEIS) is an expanding database of scientific information about the effects of fire on plant and animal species and ecological communities, and developed by the Intermountain Fire Sciences Laboratory in Missoula, Montana.

FEIS is currently available through dial up modem connection and updated periodically. Contact the Fire Management Branch for information on the FEIS.

1.8 RECORDS AND REPORTS

1.8.1 PERMANENT REFUGE RECORDS

The following old records presently in the refuges should be held in the refuge as permanent historic resource management records:

1. Fire reports (10-400, DI-1201, and DI-1202).

2. "Annual Narrative"

3. Fire weather records.

4. Historic records of the refuge, including any photographs showing vegetative cover, cover type maps, etc. Monthly reports or other files which may represent the only documentation of fire occurrence or fire behavior in the refuge.

5. All other maps or records pertinent to fire management.

1.8.2 SITUATION REPORTS

Situation reports contain current information about fire danger, fire status, and resource availability.

Refuges with permanent fire staffs prepare daily situation reports during their official fire seasons. Those refuges, when outside of official fire season, and all other refuges, prepare situation reports under the following circumstances:

1. Daily, when in very high or extreme fire danger.

2. Daily, whenever a fire has occurred, is in progress, or is planned.

3. Additionally, as required by regions/zones.

Situation reports are prepared and transmitted on-line via the Fish and Wildlife Service Fire Management Information System. It is preferable for reports to be completed by 1100 hours (Mountain Standard Time Zone) for compilation into interagency situation reports, but they may be entered at any time. Situation reporting procedures are discribed below. In accordance with local or regional procedures, refuges may also provide situation reports to local cooperators or interagency coordination centers.

Historic situation report files will be used in the FIREPRO prescribed fire monitoring needs analysis to monitor staffing requirements. For this reason it is especially important that refuges make daily entries for all prescribed natural fires and prescribed burns.

Situation Reporting Requirements

SCOPE AND PURPOSE

This exhibit provides information on specific Fish and Wildlife Service procedures for utilization of the Fish and Wildlife Service Fire Management Information System's wildland fire situation reporting applications.

FISH AND WILDLIFE SERVICE FIRE MANAGEMENT INFORMATION SYSTEM

The user's Guide to the Fish and Wildlife Service Fire Management Information System, which all Fish and Wildlife Service fire management personnel should be referencing, is the agency's draft publication.

ACCESS/COMMUNICATION INFORMATION

Access to the computer system is via FTS2000. Refer to the user's guide for complete access instructions and local phone numbers.

WHERE TO GET HELP

For computer system access, problems and questions that arise, contact the Fire Management Branch:

208-387-5595

MANAGING COSTS

The length of time on-line interactive with the computer should be minimized to reduce phone line charges.

REPORTING REQUIREMENTS

Refuges with permanent fire staffs prepare daily situation reports during designated fire seasons. Those refuges outside of their normal fire season, and all other refuges or their regional offices, prepare reports under the following circumstances:

a. Daily situation reports when in very high or extreme fire danger.

b. Daily situation reports whenever a wild or prescribed fire has occurred, is in progress, or is planned.

Refuge reports must be prepared early enough in the day for compilation and transmittal to Boise for inclusion in the interagency summary prior to 1100 (Mountain Standard Time). Reports may be updated at any time.

SITUATION REPORT CONTENTS

0. ALPHA CODE: The unit or refuge's Alpha code.

1. NAME and PHONE NUMBER of individual preparing report.

2. FIRE DANGER: Low, medium, high, very high, or extreme.

3. ADD NEW FIRES: Details in Fields 7-17, below.

4. UPDATE CARRY-OVER FIRES: Details in fields 7-17, below.

5. RESOURCES: Available and committed helicopters, lead planes, Type I crews, Type II crews, engines (500+ gallons), overhead teams, prescribed natural fire monitors, and firefighters. Available resources are administratively assigned to the unit, physically located in the unit, and available for dispatch. Available resources do not include resources that are on days off, out of service, or committed to fires. Committed resources include those resources that are assigned and unavailable for out of unit dispatch.

6. ANALYSIS/PROGNOSIS/REMARKS: Analysis is a short interpretation of the severity of the situation level, including going fires, resource availability, weather patterns, and other factors which may effect suppression capabilities. The prognosis is a short-term forecast of the probable course of events for fire occurrence based on the items identified in the analysis. The prognosis includes an assessment of the ability to control new fires with existing resources and anticipated major fire occurrences. Remarks include listings of critical significant events, such as red flags and high winds, and newsworthy items such as personnel dispatches, fatalities, aircraft accidents, loss of major equipment, structural losses, special problems or considerations, etc.

7. FIRE NUMBER: The fire number that will identify the fire on the individual fire report form (DI-1202).

8. FIRE TYPE: Wildfire, prescribed burn, or prescribed natural fire.

9. CAUSE: Human or natural ignition.

10. NAME: Fire name.

11. START DATE: Start date or discovery date.

12. ACRES: Number of acres burned in past 24 hours (wildfires) or active acres (prescribed fires). Active acres is the number of actively burning acres within a prescribed fire, which is generally smaller than the entire burn acreage.

13. DATE: Estimated control date (wildfires) or estimated completion date (prescribed fires).

14. TOTAL ACRES: Current total fire size.

    Note: All large fires require timely submission of ICS-209 forms following the unit's normal dispatch procedures. Large fires include non-prescription forest fires of 100 acres or more, grass/brush fires of 300 acres or more, politically sensitive fires, and fires with fatalities.

15. STRATEGY: Confine, control, contain (wildfires), or monitor (prescribed fires).

16. STATUS: Uncontrolled, controlled, declared out (wildfires); within prescription, out of prescription, declared out (prescribed fires).

SITUATION REPORT FILES

Summarized and detailed situation reports for all reporting units can be viewed and printed on the computer system. Refuge reports are requested by alpha code. Regional and national groupings of reports are accessed with the following codes:

FWS - All areas
R-2 - Region 2
R-4 - Region 4
R-6 - Region 6

R-1 - Region 1
R-3 - Region 3
R-5 - Region 5
R-7 - Region 7

1.8.3 FIRE WEATHER RECORDS

All refuges will maintain or reference fire weather stations, and record daily weather observations during their official fire seasons. Weather observations are entered directly into WIMS, and are archived automatically into the National Interagency Fire Management Integrated Database (NIFMID).

On an annual basis, weather data from NIFMID are accessed and added to the fire weather data base on the Fish and Wildlife Service Fire Management Information System. Refuges must catalogue all their weather stations on both the Fish and Wildlife Service computer system and WIMS in order to access historical weather data for those stations.

The Firefamily program on the FMIS uses historical weather data to determine burn index break-points. These break-points are used in FIREPRO analyses and in step-up plans. Once every three years, refuges should run Firefamily on all years of available weather data, and adjust burn-index break-points as necessary.

1.8.4 FIRE REPORT RECORDS

Each wildland fire and support action will have a fire report prepared and archived to document the fire incident. Interior agencies utilize DI-1202, the Individual Fire Report, as the official reporting document. In the event that a prescribed fire escapes and is reclassified as a wildfire, two separate reports are prepared. The narrative of the prescribed fire report should indicate that the fire escaped and reference the new assigned wildfire number, and report only those acres burned within prescription. A new report is started for the newly declared wildfire, and report acres burned from the point of escape to the declared out acres. The cause and narrative should indicate that the wildfire resulted from an escaped prescribed fire. All wildfires caused by escaped prescribed fires will be reviewed: see section 3.4.2 Fire Reviews - Prescribed Fire / Wildfire Review.

The Fish and Wildlife Service Fire Management Information System (FMIS) has an on-line data entry and editing application for direct entry of DI-1202 information. Refuges which have computer telecommunications capability will use the computer to file their reports, and retain the hard copy report on file in the refuge. Refuges without computers will forward one copy of each completed DI-1202 to the appropriate data entry site assigned by the Regional Fire Management Coordinator for data entry.

Data entry begins at the time of the fire in order to get a fire number. The complete fire report is to be entered on the computer system within 20 days after the fire is declared out. Regional offices will assure that all fire reports are entered into the Servicewide database.

The instruction package for report preparation follows.

GENERAL DI-1202 INSTRUCTIONS

1. The fire reporting process will be done by data entry into the computer. A fire number will automatically be assigned to the fire.
2. Report and record each individual fire on a separate form.
3. DO NOT ENTER ZEROS to the left of significant numbers except where indicated as part of the code entry.
4. Each Fire Report is to be entered into the FMIS computer system within **20 days** after the fire has been declared out.
5. An original hard copy needs to be kept on file because FMIS cannot capture the map and signature at this time.
6. A narrative for each fire will be included in the Remarks" section. Other items that require clarification are also reported in this section.
7. DO NOT use more digits than are indicated by dashes on the form.
8. Enter only the code numbers, except as specified in the Specific Instructions.
9. Enter the **MANDATORY** data for the following type fires:

FIRE TYPE 1 (SUPPRESSED FIRE)

Item Description Item Description

1 Status Code
2-3d Header
4a-b Fire Type
5 Cause
6 People
*8a State
*8b Owner
*8c Vegetative Type
*8d Acres
9a Fire Name
9b Area Name
9c Latitude/Longitude
9e Cost Code
9f Ownership at Origin
9g Fiscal Year

10a Discovery:date/time/type/acres
10b Initial Attack:date/time/type/amt/acres
10c Control: date/time/acres
10d Declared Out: date
11a Topography
11b Aspect
11c Slope
11d Elevation
11g Fire Behavior

*8a-8d Repeats (up to 8 of State, Owner, Vegetative Type, Acres) as needed.

All other items are optional.

FIRE TYPE 2 (NATURAL OUTS)

Item Description Item Description

1 Status Code
2-3d Header
4a-b Fire Type
5 Cause (if known)
*8a State
*8b Owner
*8c Vegetative Type
*8d Acres
9a Fire Name
9c Latitude/Longitude
9e Cost Code
9f Ownership at Origin
9g Fiscal Year

10a Discovery:date/time/type/acres
10d Declared Out: date
11a Topography
11b Aspect
11c Slope
11d Elevation

*8a-8d Repeats (up to 8 of State, Owner, Vegetative Type, Acres) as needed

All other items are optional.

FIRE TYPE 3 (SUPPORT ACTIONS)

Item Description

1 Status Code
2-3d Header
4a-b Fire Type: Must always be '37'
8a State
8b Owner
9a Fire Name
9e Cost Code
9f Fiscal Year

All other items are optional.

9h	Fiscal Data
10a	Discovery: date

FIRE TYPE 4 (PRESCRIBED FIRES) - CODES 48 & 49 (PLANNED/UNPLANNED IGNITIONS)

See Part II of the Instructions.

FIRE TYPE 5 (ACTION TYPE FALSE ALARMS)

Item	Description	Item	Description
1	Status Code	10a	Discovery:data/time/type/acres
2-3d	Header	10b	Initial Attack: type/amount
4a-b	Fire Type		
8a	State		
8b	Owner		
9a	Fire Name		
9e	Cost Code		
9g	Fiscal Year		
9h	Agency Fiscal Data		

DO NOT PREPARE A REPORT FOR A NO ACTION TYPE FALSE ALARM !!!

SPECIFIC INSTRUCTIONS

PART I - WILDFIRES

1. REPORT STATUS CODE - Enter one of the following.

   NEW - Enter the number 1. A fire reported for the first time during the season.

   CORRECTION - Enter the number 2. Make a Xerox copy of the fire report and make correction in red. Do not submit a new report.

   DELETION - Enter the number 3. Prepare a new report and make identical entries in items 1 through 5 as were on the original report.

2. REPORTING AGENCY - This refers to the Government agency submitting the report.

Agency	Code
BLM	1
BIA	2
NPS	3
FWS	4

OTHER.....5

3. a. UNIT - Enter first two digits of organization code.

   b. SUB-UNIT - Enter last three digits of organization code.

   c. CALENDAR YEAR - Enter last two digits only: 1990 = 90.

   d. FIRE NUMBER - Fire number will automatically be assigned by the computer upon data entry. The entire report does not need to be entered into the computer to receive a fire number. The header (items 1 - 3c) is all that is required. The remainder of the report will need to be completed during and at the conclusion of the fire.

4. FIRE TYPE

   a. Fire Type - enter one of the following codes:

      (1) For all fires suppressed by the reporting agency's employees, regardless of land ownership, or by contractors, or operators on reporting Agency's land.

      (2) Natural Outs - Fires discovered after they have been extinguished by natural causes. **NO SUPPRESSION ACTION TOOK PLACE.**

      (3) Support Actions - Action taken at the request of a cooperator on a fire which is not threatening FWS land and no formal agreement exists which would require a FWS response. **Does not include initial attack under established mutual aid agreements.** (Protection Type 7).

      (4) Prescribed Fires - See Part II.
      If the fire escaped and is declared a wildfire the narrative for the prescribed fire should indicate such and reference the new assigned number for the wildfire. A new DI-1202 will be started for the newly declared wildfire. The cause and narrative should indicate that the wildfire resulted from an escaped prescribed fire. Use cause 917 for an escaped prescribed fire.

      (5) False Alarms - For all reported fires on which some type of response was initiated (e.g., patrol plane or crew dispatched, etc.) but **no suppression action took place**, either because the fire was not found or it was not within reporting agency's jurisdiction.

   b. Protection Type - enter one of the following codes:

      (1) For reporting agency land under reporting agency protection.

(2) For reporting agency land protected by another Federal agency under a Memorandum of Understanding or cooperative agreements.

(3) For reporting agency land protected by another non-Federal agency under a cooperative agreement or contract.

(4) Reporting agency lands under reporting agency protection where action is taken under an approved limited suppression plan. (Fire Type must be 1.)

(5) For Other lands not under a Memorandum of Understanding, cooperative agreement or contract but where action is taken by the reporting agency to prevent fire spread to reporting agency lands.

(6) For Other lands protected by the reporting agency under a Memorandum of Understanding, cooperative agreement or contract.

(7) Support actions by the reporting agency under Fire Type 3.

(8) Prescribed Fire - planned ignitions (see Part II).

(9) Prescribed Fire - unplanned ignitions (see Part II).

5. CAUSE

Statistical Cause	**Code**
Lightning	1
Camp Fire	2
Smoking	3
Debris Burning	4
Incendiary	5
Equipment Use	6
Railroads	7
Children	8
Miscellaneous	9

Specific Cause (2nd and 3rd digit of Cause column)

Lightning	01
Aircraft	02
Burning Vehicle	03
Exhaust Power Saw	04
Exhaust - Other	05
Logging Line	06
Brakeshoe	07
Cooking Fire	08
Warming Fire	09
Smoking	10
Trash Burning	11

Burning Dump	12
Field Burning	13
Land Clearing	14
Slash Burning	15
Right-of-way Burning	16
*Resource Management Burning	17
Grudge Fire	18
Pyromania	19
Smoking Out Bees or Game	20
Insect or Snake Control	21
Job Hunting	22
Blasting	23
Burning Building	24
Power Line	25
Fireworks	26
Playing with Matches	27
Repelling Predators	28
House or Stove Flue Sparks	29
Other	30

6. CLASS OF PEOPLE

(0) For all fires where cause is lightning or unknown.

(1) For all individuals who own land or businesses within protection boundaries.

(2) For all individuals, their agents or employees, who have special use permits on reporting agency lands within protection boundaries.

(3) For contractors, their agents or employees for purchase of products or construction of facilities.

(4) For all Federal, State, County, Municipal or other public employees.

(5) For all permanent residents living inside or within one mile outside the protection boundary.

(6) For all seasonal residents or workers residing inside or within one mile outside the protection boundary.

(7) For all tourists, motorists, campers, etc., in transit through the protected area.

7. NET RESOURCE VALUE CHANGE PER ACRE - OMIT

8. STATISTICAL DATA

a. STATE - FIPS 5-1 Codes - Refer to Table 1

b. OWNERSHIP - Enter from the following:

Ownership	Code
BLM	1
BIA	2
NPS	3
FWS	4
USFS	5
Other Federal Lands	6
State	7
Private	8
Other	9
Foreign	0

c. VEGETATIVE TYPE

Type	Code
Commercial Forest Land (Land producing or capable of producing wood products such as sawtimber, posts, poles, etc., and not withdrawn from timber use.)	1
Noncommercial Forest Land (Land not capable of yielding wood products or products or commercial forest land withdrawn from timber use.)	2
Nonforest Watershed (Land which has never supported forests or has been developed for nonforest uses.)	3

d. ACRES - Nearest tenth acre.

NOTE: Repeat Items 8a. thru 8d. for each change in State, Ownership or Vegetative Type. Items 8a. thru 8d. may be repeated up to 8 times if needed.

9. AGENCY DATA

a. FIRE NAME - Name is limited to 10 characters. If more than 10 letters, your computer will blow up!!!!

b. AREA NAME - Enter 2 digit Congressional District (CD) Code.

c. LATITUDE/LONGITUDE - Point of Origin. Enter latitude and longitude to the nearest minute for the point of origin.

d. LEGAL DESCRIPTION - May be used **in addition** to Latitude/Longitude. Enter Township, Range, Section and Meridian code. DO NOT USE DECIMALS OR FRACTIONS.

e. COST CODE - Enter from the following:

Estimated Suppression Cost Dollars	**Code**
0-100	1
101-500	2
501-1,500	3
1,501-5,000	4
5,001-25,000	5
25,001-50,000	6
50,001-100,00	7
100,001-500,000	8
500,001 & over	9

f. OWNERSHIP - Point of Origin - (This value must also be entered in 8b).

g. FISCAL YEAR - Enter last digit of Fiscal Year for Date of Initial Action or Prescribed Fire.

h. AGENCY FISCAL DATA - Enter best estimate of actual costs charged to fire number, including False Alarms (nearest dollar).

i. UNIVERSAL TRANSVERSE MERCATOR - UTM - May be used in addition to Latitude/Longitude.

j. FIRE PROBLEM CLASS - Omit

10. SUPPRESSION DATA

a. DATE DISCOVERED--MMDD - Enter four-digit number for month and day. (Example: October 12 = 1012.)
TIME DISCOVERED--HHMM - Enter four-digit number using 24-hour clock. (Example: 8:13 p.m. = 2013).

DETECTION - Enter code for detection type from following:

Type	**Code**
Agency Lookout	A
Other Lookout	B
Fire Patrolman	C
Other Agency Employee	D
Cooperator Employee	E
Agency Patrol Aircraft	F
Cooperator Patrol Aircraft	G

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Other Aircraft	H
Permittee	I
(All persons holding a use permit or contract on agency lands.)	
Visitor	J
Local Resident	K
(Permanent Residents on or adjacent to agency lands.)	
Other	L
Smokejumper Patrol Flight	M
AFS Aircraft Not on Patrol	N

ACRES AT DISCOVERY - Enter to nearest tenth acre.

b. DATE OF INITIAL ATTACK--MMDD - Enter four-digit number for month and day.

TIME OF INITIAL ATTACK (defined as the time the first initial attack unit arrives at the incident)--HHMM - Enter four-digit number using 24-hour clock.

TYPE OF INITIAL ATTACK - Enter code from the following list for first, second, and third units attacking fire.

Type	Code
Explosives (# of Crews)	A
Plows or Trenchers	B
Light Engines (Less than 300 gal)	C
Medium Engines (300-500 gal/50 GPM)	D
Heavy Engines (500 gal+/70 GPM)	E
Handcrew (# of Individuals)	F
Smokejumper (# of Individuals)	G
Helitack Crew (# of Individuals)	H
Light Airtanker (800-1000 gal-Type 3)	I
Medium Airtanker (1000-2000 gal-Type 2)	J
Heavy Airtanker (2000 gal+-Type 1)	K
Light Helitanker (up to 300 gal-Type 3&4)	L
Medium Helitanker (300-700 gal-Type 2)	M
Heavy Helitanker (700 gal+-Type 1)	N
Light Dozer (D-4 or Equiv.)	O
Medium Dozer (D-5, D-6 or Equiv.)	P
Heavy Dozer (D-7 and Larger or Equiv.)	Q
Other	R
Monitoring Fire by Air	S
(Not for natural out)	
Monitoring Fire by Ground	T
(Not for natural out)	
Reconnaissance Aircraft	U

AMOUNT OF INITIAL ATTACK - Enter the number of persons or pieces of equipment. When type of initial attack is Airplane Tanker (I-K) or Helicopter Tanker (L-N) or Helicopter Tanker (L-N), amount is number of drops. Code actual amount up to 99 items. For more than 99 items code zero (0). Enter number of flights for monitoring by air. Enter number of persons x number of days for ground monitoring (5 people x 3 days = 15).

ACRES AT INITIAL ATTACK (defined as size of fire at time initial attack unit arrives at the incident) - Enter to the nearest tenth acre.

c. DATE CONTROLLED--MMDD - Enter four-digit number for month and day.

TIME CONTROLLED--HHMM - Enter four-digit number using 24-hour clock.

ACRES AT CONTROL - Enter total acres within control lines to nearest tenth acre.

d. DECLARED OUT--MMDD - Enter four-digit number for month and day.

11. SITE DATA

a. TOPOGRAPHY - Enter topography in vicinity of fire origin from the following:

Typographic Feature	Code
Ridgetop	1
Saddle	2
Upper 1/3 of slope	3
Middle 1/3 of slope	4
Lower 1/3	5
Canyon bottom	6
Valley bottom	7
Mesa or plateau	8
Flat or rolling	9

b. ASPECT - Enter appropriate code for the vicinity of the fire origin.

Aspect	Code
Flat	0
N	1
NE	2
E	3
SE	4
S	5
SW	6
W	7
NW	8

Ridgetop	9

c. SLOPE - Enter appropriate code for the vicinity of the fire origin.

Percent	Code
0-25	1
26-40	2
41-55	3
56-75	4
75+	5

d. ELEVATION - Enter appropriate code for the vicinity of the fire origin.

Elevation (ft)	Code
0-500	0
501-1500	1
1501-2500	2
2501-3500	3
3501-4500	4
4501-5500	5
5501-6500	6
6501-7500	7
7501-8500	8
8500+	9

e. NFDRS STATION - 6 digit NFDRS Station Number for the station describing the fire climate area in which the fire occurred if available. Otherwise, leave blank.

f. FUEL MODEL (MSGC) (Required if "e" is completed.) 4 character (Model/Slope/Grass Type/Climate Class) NFDRS fuel model designator characterizing vicinity of origin.

g. BEHAVIOR - Fire behavior characterizing vicinity of origin. (See Appendix 1 for narrative of the values.)

Fire Behavior	Code
Smoldering	1
Creeping/Spreading	2
Running	3
Running and Spotting	4
Torching	5
Crowning	6
Crowning and Spotting	7
Erratic Behavior	8

h. BURNING INDEX (Required if "e" is completed.) NFDRS BI for the station (if any) used to determine manning for initial attack on date of fire. Otherwise, leave blank.

i. ADJECTIVE CLASS(optional) - For the station (if any) used to determine staffing for initial attack on date of fire. Otherwise, leave blank.

Low	1
Moderate	2
High	3
Very High	4
Extreme	5

j. RVC-RESOURCE VALUE CLASS (optional)- If area has not been classified, enter "O". Enter code for value class determined by Normal Fire Year Plan from the following:

Value Class	Code
I	1
II	2
III	3
IV	4
V	5
Not Classified	O

12. PREVENTION DATA (Optional) Refer to Appendix 2 for Cause Analysis codes.

a. FORM OF HEAT
b. CERTAINTY
c. EQUIPMENT
d. MATERIAL
e. FACTOR

f. CLASS PEOPLE
g. AGE
h. SEX
i. ACTIVITY

j. ESTIMATED DAMAGE TO IMPROVEMENTS - Enter best estimate of total damage to improvements (buildings, fences, etc.) where total damage exceeds $100. Enter amounts to the nearest $100.

PART II - PRESCRIBED FIRES

GENERAL INSTRUCTIONS

1. The fire reporting process will be done by data entry into the computer. A fire number will automatically be assigned to the fire.

2. Enter the MANDATORY data for the following type fires:

   a. FIRE TYPE 48 (PRESCRIBED FIRE/PLANNED IGNITIONS).

Item	Description	Item	Description
1	Status Code	10a	Discovery: date/time
2-3d	Header	10c	Controlled: acres
4a-b	Fire Type	10d	Declared Out: date
*8a	State	11a-d	Site Data
*8b	Owner	11e	NFDRS Station (if available)
*8c	Vegetative Type	11f	MSGC (if 11e is completed)
*8d	Acres	11h	BI (if 11e is completed)
9a	Fire Name	13a-e	Prescribed Fire Data
9b	Area Name		
9c	Latitude/Longitude		
9f	Ownership		
9g	Fiscal Year		
9h	Agency Fiscal Data		

All other items are optional.

*8a-8d may be repeated up to 8 times if needed. Only the first set is mandatory.

b. FIRE TYPE 49 (PRESCRIBED FIRE/UNPLANNED IGNITIONS).

Item	Description	Item	Description
1	Status Code	10a	Discovery:date/time/type/acre
2-3d	Header	10c	Controlled: acres
4a-b	Fire Type	10d	Declared Out: date
5	Cause	11a-d	Site Data
6	People	11e	NFDRS Station (if available)
*8a	State	11f	MSGC (if 11e is completed)
*8b	Owner	11h	BI (if 11e is completed)
*8c	Vegetative Type	13a-e	Prescribed Fire Data
*8d	Acres	13d	OMIT
9a	Fire Name		
9b	Area Name		
9c	Latitude/Longitude		
9e	Cost Code		
9f	Ownership		
9g	Fiscal Year		
9h	Agency Fiscal Data		

All other items are optional.

*8a-8d may be repeated up to 8 times if needed. Only the first set is mandatory.

SPECIFIC INSTRUCTIONS

1. REPORT STATUS CODE - Enter one of the following.

NEW - Enter the number 1. A fire reported for the first time during the season.

CORRECTION - Enter the number 2. Make a Xerox copy of the fire report and make correction in red. Do not submit a new report.

DELETION - Enter the number 3. Prepare a new report and make identical entries in items 1 through 5 as were on the original report.

2. REPORTING AGENCY - This refers to the Government agency submitting the report.

Agency	Code
BLM	1
BIA	2
NPS	3
FWS	4
OTHER	5

3. a. UNIT - Enter first two digits of organization code.

b. SUB-UNIT - Enter last three digits of organization code.

c. CALENDAR YEAR - Enter last two digits only: 1990 = 90.

d. FIRE NUMBER - Fire number will automatically be assigned by the computer upon data entry. The entire report does not need to be entered into the computer to receive a fire number. The header (items 1 - 3c) is all that is required. The remainder of the report will need to be completed during and at the conclusion of the fire.

4. FIRE TYPE

a. Fire Type: First digit of Item 4 must be 4.

(4) Prescribed Fires - Fires on reporting agency lands ignites (either from preplanned or unplanned sources) within approved fire prescription limits to achieve resource management objectives.

b. Protection Type: Second digit of Item 4 must be 8 or 9.

(8) Prescribed Fire/Planned Ignitions - Fires ignited on reporting agency land by resource management personnel under an approved burning plan.

(9) Prescribed Fire/Unplanned Ignitions - Fires ignited or spreading onto reporting agency land from uncontrolled ignition sources which are allowed to burn within pre-approved burning prescriptions for the purpose of achieving resource management objectives.

5. CAUSE - (Mandator for Unplanned Ignitions) - See list of causes in Part I.

6. People - (Mandatory of Unplanned Ignitions) See list of causes in Part I.

8. STATISTICAL DATA

   a. STATE - Use FIPS 5-1 Codes from Table 1.

   b. OWNERSHIP - Enter from the following:

Ownership	**Code**
BLM	1
BIA	2
NPS	3
FWS	4
USFS	5
Other Federal Lands	6
State	7
Private	8
Other	9
Foreign	0

   c. VEGETATIVE TYPE

Type	**Code**
Commercial Forest Land (Land producing or capable of producing wood products such as sawtimber, posts, poles, etc., and not withdrawn from timber use.)	1
Noncommercial Forest Land (Land not capable of yielding wood products or products or commercial forest land withdrawn from timber use.)	2
Nonforest Watershed (Land which has never supported forests or has been developed for nonforest uses.)	3

   d. ACRES - Total acres actually burned to the nearest tenth acre.

   NOTE: Repeat Items 8a thru 8d for each change in State, Ownership or Vegetative Type. Items 8a thru 8d may be repeated 8 times.

9. AGENCY DATA

a. FIRE NAME - Name is limited to 10 characters. If more than 10 letters, abbreviate.

b. AREA NAME - Enter 2 digit Congressional District (CD) Code.

c. LATITUDE/LONGITUDE - Point of Origin. Enter latitude and longitude to the nearest minute for the point of origin.

d. LEGAL DESCRIPTION - May be used **in addition** to Latitude/Longitude. Enter Township, Range, Section and Meridian code. DO NOT USE DECIMALS OR FRACTIONS.

e. COST CODE - Enter from the following:

Estimated Suppression Cost Dollars	**Code**
0-100	1
101-500	2
501-1,500	3
1,501-5,000	4
5,001-25,000	5
25,001-50,000	6
50,001-100,00	7
100,001-500,000	8
500,001 & over	9

f. OWNERSHIP - Point of Origin - (This value must also show in 8b).

g. FISCAL YEAR - Enter last digit of Fiscal Year for Date of Initial Action or Prescribed Fire.

h. AGENCY FISCAL DATA - Enter best estimate of actual costs charged to fire number, including False Alarms (nearest dollar).

i. UNIVERSAL TRANSVERSE MERCATOR - UTM (Optional) - May be used **in addition** to Latitude/Longitude.

10. SUPPRESSION DATA (Mandatory as described below)

a. DISCOVERY DATE--MMDD - For unplanned ignition, enter dated discovered. For planned ignitions enter the start date of the planned ignition.

DISCOVERY TIME--HHMM - For unplanned ignition, enter time discovered. For planned ignitions enter the start time of planned ignition. Use 24 hour Military Time.

DETECTION - For unplanned ignition. Enter code for detection type from list in Part I.

c. ACRES AT CONTROL - Enter total acres within nearest tenth acre.

d. DECLARED OUT DATE--MMDD - For planned and unplanned ignition enter date fire was declared out. Refer to Part I of instructions.

11. SITE DATA

a. TOPOGRAPHY - Enter topography in vicinity of fire origin from the following:

Typographic Feature	Code
Ridgetop	1
Saddle	2
Upper 1/3 of slope	3
Middle 1/3 of slope	4
Lower 1/3	5
Canyon bottom	6
Valley bottom	7
Mesa or plateau	8
Flat or rolling	9

b. ASPECT - Enter appropriate code for the vicinity of the fire origin.

Aspect	Code
Flat	0
N	1
NE	2
E	3
SE	4
S	5
SW	6
W	7
NW	8
Ridgetop	9

c. SLOPE - Enter appropriate code for the vicinity of the fire origin.

Percent	Code
0-25	1
26-40	2
41-55	3
56-75	4
75+	5

d. ELEVATION - Enter appropriate code for the vicinity of the fire origin.

Elevation (ft)	Code
0-500	0
501-1500	1
1501-2500	2
2501-3500	3
3501-4500	4
4501-5500	5
5501-6500	6
6501-7500	7
7501-8500	8
8500+	9

e. NFDRS STATION - 6 digit NFDRS Station Number for the station describing the fire climate area in which the fire occurred if available. Otherwise, leave blank.

f. FUEL MODEL (MSGC) (Required if "e" is completed.) 4 character (Model/Slope/Grass Type/Climate Class) NFDRS fuel model designator characterizing vicinity of origin.

g. BEHAVIOR - Fire behavior characterizing vicinity of origin. (See Appendix 1 for a narrative of values.)

Fire Behavior	Code
Smoldering	1
Creeping/Spreading	2
Running	3
Running and Spotting	4
Torching	5
Crowning	6
Crowning and Spotting	7
Erratic Behavior	8

h. BURNING INDEX (Required if "e" is completed.) NFDRS BI for the station (if any) used to determine manning for initial attack on date of fire. Otherwise, leave blank.

13. PRESCRIBED FIRE DATA

a. UNIT NO. - If your jurisdiction is divided into fire management units, enter a 2 digit code designated the unit. Otherwise, enter 99.

b. PLOT NO. - Enter a 2 digit number designating the burn block. Otherwise, enter 99.

c. PLOT OBJECTIVE - Enter the code from the following table that best describes the primary burn objective.

Cultural Scene Maintenance	**Code**
Historical Scene Maintenance	01
Other Cultural Site Maintenance	02

Natural Systems	**Code**
Exotic or Undesirable Species Control	10
Habitat Maintenance	11
Research	12

Hazard Reduction	**Code**
Fuel Reduction - Activity Fuels	20
Fuel Reduction - Natural Fuels	21
Real Property Protection	22
Boundary Protection	23
Fuel Break Maintenance	24

Maintenance	**Code**
Debris Removal	30
Vista Removal	31
Health (Insect Control)	32
Right of Way Maintenance	33

Silvicultural	**Code**
Seed Bed Preparation	40
Vegetative Type Manipulation	41
Insect and Disease Control	42

d. FIRING TYPE (Planned Ignitions only) - Enter a 2 digit code from the following tables. The first digit describes the firing strategy and the second digit describes the application method.

1st position (strategy)
head fire - 1
backing fire - 2
spot fire - 3
concentric fire - 4

2nd position (method)
hand ignition - 1
aerial ignition - 2
remote ignition - 3

e. COST/ACRE - Enter the average cost per acre experienced on the burn (total cost divided by total acres).

f. FUEL MODEL - Enter the Fire Behavior Model that best characterizes the fuels in the burn.

g. TEMPERATURE MAX/MIN - Enter the prescription range for the model described in 13f on the first line and the experienced conditions during the burn on the second.

h. RELATIVE HUMIDITY MAX/MIN

i. WIND SPEED - MID FLAME MAX/MIN

j. FLAME LENGTH MAX/MIN

k. RATE OF SPREAD MAX/MIN

TABLE 1

FEDERAL INFORMATION PROCESSING STANDARDS 5-1 CODES

States of the United States (including the District of Columbia) with their assigned codes.

NAME	CODE	NAME	CODE
ALABAMA	01	MISSOURI	29
ALASKA	02	MONTANA	30
AMERICAN SAMOA	03	NEBRASKA	31
ARIZONA	04	NEVADA	32
ARKANSAS	05	NEW HAMPSHIRE	33
CALIFORNIA	06	NEW JERSEY	34
COLORADO	08	NEW MEXICO	35
CONNETICUT	09	NEW YORK	36
DELAWARE	10	NORTH CAROLINA	37
D.C.	11	NORTH DAKOTA	38
FLORIDA	12	OHIO	39
GEORGIA	13	OKLAHOMA	40
GUAM	14	OREGON	41
HAWAII	15	PENNSYLVANIA	42
IDAHO	16	PUERTO RICO	43
ILLINOIS	17	RHODE ISLAND	44
INDIANA	18	SOUTH CAROLINA	45
IOWA	19	SOUTH DAKOTA	46
KANSAS	20	TENNESSEE	47
KENTUCKY	21	TEXAS	48
LOUISIANA	22	UTAH	49
MAINE	23	VERMONT	50
MARYLAND	24	VIRGINIA	51
MASSACHUSETTS	25	VIRGIN ISLANDS	52
MICHIGAN	26	WASHINGTON	53
MINNESOTA	27	WEST VIRGINIA	54

MISSISSIPPI	28	WISCONSIN	55
		WYOMING	56

APPENDIX 1

Narrative Descriptions of Fire Behavior

1. **Smoldering** - A fire Burning slowly through direct oxidation, in leaf mold, duff, peat, etc., in which there is little or no visible flame and little or no visible smoke, but some spread and definite heat output.

2. **Creeping/Spreading** - A fire burning in fuel, such as leaf mold, litter, or light grass, with both visible flame and smoke.

3. **Running** - A fire with significant output of heat such that direct attack might be impossible. Flame length could be expected to be in excess of five feet.

4. **Running and Spotting** - Fire behavior similar to "Running:, but burning embers and firebrands are aloft and new ignitions started.

5. **Torching** - A fire in which the crowns or canopies of individual or groups of trees ignite; however, the fire does not continue into the canopy of surrounding vegetation.

6. **Crowning** - The fire tends to move through the overstory or canopy generally keeping pace with or perhaps even preceding the surface fire.

7. **Crowning and Spotting** - The same and "Crowning" with firebrands carried aloft starting fires some distance ahead.

8. **Erratic Behavior** - Involves fire whirls, fire storms, blowup conditions, or other fire behavior in which the fire's rate and direction of spread is largely unpredictable.

APPENDIX 2

FIRE CAUSE ANALYSIS CODE SHEET
(BUILDING BLOCK ANALYSIS)
(Prevention Data)

A. Form of Heat of Ignition

This is the type of heat that ignited the wildfire. Examples include open flame, sparks, and hot surfaces. From the list below select the two-digit code that best describes this type of heat.

Heat From Open Fires

01. Open Fire, debris, waste disposal.
02 Open Fire, warming.
03 Open Fire, cooking.
04 Open Fire, bonfire.
05 Open Incinerator, trash burner, burning barrel.
06 Outdoor Fireplaces.

Heat From Fuel-Fired, Fuel-Powered Object

NOTE: **Natural gas is a gas fuel; gasoline is a liquid fuel.**

Use codes 11, 13, 15, 17 where a spark, ember, or flame actually escaped from the equipment. Use codes 12, 14, 16, 18 where overheating of the outside surface of the equipment (or its internal heat) caused the ignition of nearby combustibles.

11. Spark, ember, flame escaping from gas fueled equipment.
12. Heat from gas fueled equipment.
    Included are pilot lights and normal flames.
13. Spark, ember, flame escaping from liquid fueled equipment.
14. Heat from liquid fueled equipment.
    Included are pilot lights, normal flames, and exhaust system surface.
15. Spark, ember, flame escaping from solid fueled equipment.
16. Heat from solid fueled equipment.
17. Spark, ember, flame escaping from equipment: fuel not known.
18. Heat from equipment: fuel not known.
19. Heat from Fuel-Fired, Fuel-Powered Object not classified above.
10. Heat from Fuel-Fired, Fuel-Powered Object; insufficient information available to classify further.

Heat From Electrical Equipment Arcing, Overloaded

21. Water caused short circuit arc
22. Short circuit arc from defective, worn insulation.
23. Short circuit arc from defective, worn insulation.
24. Unspecified short circuit arc, heat/arc from powerline fusion (tree falling against line.)
25. Arc from faulty contact, loose connection, broken conductor, broken powerline.
26. Arc, spark from operating equipment switch, or electric fence.
27. Heat from overloaded equipment.
    Included are wires and motors.
28. Heat from Electrical Equipment Arcing, Overloaded not classified above.
29. Heat from Electrical Equipment Arcing, Overloaded; insufficient information available to classify further.

Heat From Smoking Material

Included is heat from material in use or after use.

Excluded are matches (45) and lighters (46).

31. Cigarette.
32. Cigar.
33. Pipe.
39. Heat from Smoking Material not classified above.
30. Heat from Smoking Material; insufficient information available to classify further.

Heat From Open Flame, Spark

41. Cutting torch operation (separating metals).
42. Welding torch operation (joining metals).

43. Torch operation, other than cutting and welding.
    Included are plumbers' furnaces, blow torches, plumbers' torches, Bunsen burners, soldering and heating operations, paint stripping torches, and other torch operations.
44. Candle, taper.
45. Match.
46. Lighter (flame type).
47. Warning flares, fussee.
48. Backfire from internal combustion engine.
49. Heat from Open Flame, Spark not classified above.
40. Heat from Open Flame, Spark; insufficient information available to classify further.

Heat From Hot Objects

51. Heat, spark from friction.
    Included are overheated tires.
52. Molten, hot material.
    Included are molten metal, hot forging, hot glass, hot metal fragment, brakeshoe, hot box.
53. Hot ember, ash.
54. Electric lamp.
    Included are light bulbs.
55. Rekindle, reignition.
56. Heat from properly operating electrical equipment.
57. Heat from improperly operating electrical equipment.
59. Heat from Hot Objects not classified above.
50. Heat from Hot Objects; insufficient information available to classify further.

Heat From Explosives, Fireworks

61. Explosives.
    Included are bombs, ammunition not tracer, and military rockets.
62. Blasting agency, prima cord, black powder fuse.

63. Fireworks.
    Included are sparklers, paper cap, and party popper.
64. Tracer Ammunition.
65. Model rocket.
66. Incendiary device.
    Included are Molotov cocktails.
60. Heat from Explosive, Fireworks; insufficient information available to classify further.

Heat From Natural Source

71. Sun's heat.
    Usually magnified through broken glass or glass bottle.
72. Spontaneous ignition, chemical reaction.
73. Lightning discharge.

74. Static discharge.
79. Heat from Natural Source not classified above.
70. Heat from Natural Source; insufficient information available to classify further.

Heat Spreading From Another Fire (Exposure)

81. Heat from direct flame, convection currents.
82. Radiated heat.
83. Heat from flying brand, ember, spark.
84. Conducted heat.
89. Heat Spreading from Another Fire not classified above.
80. Heat Spreading from Another Fire; insufficient information available to classify further.

Other Form of Heat of Ignition

97. Multiple forms of heat of ignition.
    Use this subdivision only where there are multiple fires started at approximately the same time on the same property and more than one heat of ignition was initially involved. If one major heat source was involved, use the appropriate classification. List each heat source in the report.
99. Other Form of Heat of Ignition not classified above.
00. Form of Heat of Ignition undetermined or not reported.

B. Degrees of Certainty - Heat of Ignition

Determine certainty of Heat of Ignition described above and enter the corresponding code number.

1. Certain - Form of Heat of Ignition is established by admission, statement of reliable witness, or physical evidence. This category is intended to cover cases where form of heat of ignition is established beyond doubt.

2. Reasonably Certain - Form of Heat of Ignition is established by strong circumstantial evidence. This category covers cases where form of heat of ignition is reasonable certain, but witness statements or physical evidence present may not be conclusive.
3. Less Probable - Form of Heat of Ignition is established by weak circumstantial evidence, by process of elimination between two or more possible forms of heat ignition, or by fire history of the area and experienced judgment of the investigator.
4. Undetermined - No definite clues, or could have started from any of several

40. Electrical Distribution Equipment; insufficient information available to classify further.

Household Appliances, Equipment (other than elsewhere classified in this Code Sheet)

50. Household appliances, Equipment.

Industrial Processing Equipment

70. Industrial Processing Equipment.

Industrial Service, Maintenance Equipment

81. Incinerator.
87. Torches.
Included are cutting, welding, and plumbers' torches, Bunsen burners, and the like.
89. Industrial Service, Maintenance Equipment not classified above.

80. Industrial Service, Maintenance Equipment; insufficient information available to classify further.

Other Object, Exposure Fire

91. Separate, removed exposure.
Ignition of another fixed or mobile property separated from the fire by a distance of at least 50 feet.
92. Separate, detached exposure.
Ignition of another fixed or mobile property separated from the fire by a distance of more than one foot but less than 50 feet.
93. Separate, adjoining exposure.
Ignition of another fixed or mobile property separated from the fire by a distance of less than one foot, or by an unpierced wall.
96. Equipment Involved in Ignition undetermined or not reported.
98. No equipment involved - See Chapter C for Form of Heat of Ignition (e.g., cigarette, match).
99. Other Object, Exposure Fire not classified above.
90. Other Object, Exposure Fire; insufficient information available to classify further.

Railroad, Woodland, Construction, Farm, and Other Rural Equipment.

General

101. Power Saw
102. Vehicles, Trucks, Buses
103. Tractors
104. Chippers

Railroad Equipment

111. Locomotive, Engine Diesel
112. Freight, Box, Hopper, Tank, Container, Passenger, Dinner Car
113. Refrigerator, Piggy-back Car
114. Speeder, High-Rail Car
115. Rail Grinder
116. Thermal Splicer
119. Internal Combustion Engines not listed above.

Woodland Equipment

121. Cables, Wire Rope
122. Blocks
123. Sky Car
124. Loader
125. Yarder
126. Skidder, Forwarder
127. Tree Jack

128. Air Curtain Destructors
129. Internal Combustion Engines not listed above.

Construction Equipment

Includes construction operations for roads, reservoirs, dams, wells, pipelines, and powerlines.

131. Pavement Tar Warmers
132. Road Graders
133. Rock Crusher, stationary and portable.
134. Air Compressors, Rock Drills and Jack Hammers
139. Internal Combustion Engines not listed above.

Farm Equipment

141. Electric Fences
142. Combines
143. Choppers
144. Balers
145. Hay Stacker
149. Internal Combustion Engines not listed above.

Home Equipment

151. Tractor, garden
152. Trash Burner, Burning Barrel

153. Weed Burner
154. Mower
159. Internal Combustion Engines not listed above.

Recreation Equipment

161. Trail Bikes
162. Other Motorized Equipment
163. Lanterns
169. Internal Combustion Engines not listed above

D. Type of Material First Ignited

An ignition requires a kindling fuel in addition to heat. The type of material ignited may include fuels such as grass, wood, paper, and hay. Select the two-digit code that best describes the "Type of Material First Ignited".

Wood, Cellulose - Natural Occurring

01. Grass
02. Leaves, needles, litter (vegetative)

03. Duff
04. Peat
05. Live tree
06. Snag (standing dead tree)
07. Logs
08. Slash (felled brush, limbs, tree tops)
09. Rotten Wood

Gas

11. Natural gas
12. LP-City Gas (LP and air mix)
13. Manufactured gas
14. LP-Gas
16. Acetylene
19. Gas not classified above.
10. Gas, insufficient information available to classify further.

Flammable, Combustible Liquid

23. Gasoline
25. Kerosene, Nos. 1, 2, 4 and 5 fuel oil, and diesel fuel.
26. No. 6 fuel oil, cottonseed oil, and lubricating oil.
27. Cooking oil, transformer oil, and lubricating oil.
29. Flammable, Combustible Liquid not classified above.

30. Flammable, Combustible Liquid; insufficient information available to classify further.

Volatile Solid, Chemical

31. Fat, grease (food).
Included are butter, tallow, margarine, and lard.
32. Grease (non-food).
Included are petroleum jellies.
34. Adhesive, resin, tar.
Included are glue, gelatin, rosin, damas, elemi, kauri, asphalt, and pitch.
37. Solid chemical (specify type).
Included are explosives.
Excluded are liquid chemicals and gaseous chemicals.
39. Volatile Solid, Chemical not classified above.
30. Volatile Solid, Chemical; insufficient information available to classify further.

Plastic

Included are all forms of plastic whether rigid, semi-rigid, flexible or foamed.

40. Plastic

Natural Product

51. Rubber.
Included are synthetic rubbers.
54. Hay, straw
55. Grain, natural fiber (pre-process).
Included are feathers, felt, kapok, hessian, hemp, sisal, jute, cocofilm, flax, and cotton.
56. Coal, coke, briquettes
58. Tobacco
59. Natural Product not classified above.
50. Natural Product; insufficient information available to classify further.

Wood, Paper - Processed

61. Railroad ties
62. Wood chips
63. Sawn wood.
Included is all finished lumber.
64. Wood shavings.
Included are all sawdust and excelsior.
65. Hardboard, plywood
66. Fiberboard (low density material), wood pulp.
Included are low density pressed wood fiber board products.

67. Paper, untreated, uncoated.
Excluded are waxed papers (83).
68. Cardboard
69. Wood, Paper not classified above.
60. Wood, Paper; insufficient information available to classify further.

14. Incendiary, fire to get a job.
15. Incendiary, pyromania.
16. Incendiary, forage manipulation.
17. Incendiary, create hunting area.
18. Incendiary, smoking-out game.

Suspicious

Circumstances indicate the possibility that the fire may have been deliberately set, multiple ignitions were found, or there were suspicious circumstances and no accidental or natural ignition factor could be found.

21. Suspicious, not during civil disturbance.
22. Suspicious, during civil disturbance.

Misuse of Heat of Ignition

31. Abandoned, discarded material.
    Included are tobacco embers, hot ashes, other burning material.
32. Thawing
33. Falling asleep
34. Inadequate control of open fire.
    Includes prescribed fire, smoking-out animals, debris burns, failure to extinguish.
35. Cutting, welding too close to.
36. Child playing with matches or other ignition source.
37. Unconscious; mental, physical impairment; drug, alcohol stupor.
38. Improper use or placement of heat source.
    Includes block hung improperly, campfire built against snag, using matches for light in an unsafe place.
39. Misuse of Heat of Ignition not classified above.
30. Misuse of Heat of Ignition; insufficient information available to classify further.

Misuse of Material Ignited

41. Fuel spilled, released accidentally.
42. Improper fueling technique.
    Includes power saws, vehicles, gas appliances.
43. Flammable liquid used to kindle fire.
44. Washing part, cleaning, refinishing, painting.
45. Improper container.
46. Combustible too close to heat.
47. Improper storage.
    Includes material likely to spontaneously ignite.
48. Children with burning materials.
49. Misuse of Material Ignited not classified above.
40. Misuse of Material Ignited; insufficient information available to classify further.

Mechanical Failure, Malfunction

51. Part failure, leak, break.
52. Automatic control failure.
Included are delayed ignitions of oil burners.
53. Manual control failure.

54. Short circuit, ground fault.
55. Other electrical failure.
56. Lack of maintenance, worn out.
57. Backfire.
Included are ignitions outside the combustions chamber.
Excluded are fires originating as a result of hot catalytic converters (61).
59. Mechanical Failure, Malfunction not classified above.
50. Mechanical Failure, Malfunction; insufficient information available to classify further.

Design, Construction, Installation Deficiency

61. Design Deficiency.
Included are catalytic converters.
62. Construction deficiency.
63. Installed too close to combustibles.
64. Other installation deficiency. Includes improper installation of spark arrester, exhaust system, chimney, stove pipe.
65. Property too close to.
Included are exposure fires.
66. Failure to install fire preventive device.
Includes spark arrester, chimney screen.
67. Incinerator or burning device failure.
Includes burned-out or rusted-out incinerator or burn barrel, burned or rusted-out screen.
69. Design, Construction, Installation deficiency not classified above.
60. Design, Construction, Installation deficiency; insufficient information available to classify further.

Operational Deficiency

71. Collision, overturn, knockdown.
72. Accidentally turned on, not turned off.
73. Unattended.
74. Overloaded.
75. Spontaneous heating.
76. Improper startup, shutdown procedures.
77. Failure to clean combustibles from heat source.
Includes debris around engines, clearing around blocks, incinerators or other burning devices, campfires, chimney.

78. Failure to inspect regularly or maintain.
    Includes failure to check fire prevention device and cleaning spark arrester, exhaust system, clear powerlines, or wiring.
79. Operational Deficiency not classified above.
70. Operational Deficiency; insufficient information available to classify further.

Natural Condition

81. High wind.
82. Earthquake.
83. High water, including floods.
84. Lightning.
89. Natural Condition not classified above.
80. Natural Condition; insufficient information available to classify further.

Other Ignition Factor

91. Animal.
92. Rekindled from a previous fire.
93. Failure to recognize changed ignition conditions.
    Included drastic weather changes, very low humidity with high temperature and wind.
99. Other Ignition Factor not classified above.
00. Ignition Factor undetermined or not reported.

F. Class of People - Enter the code that best identifies the person responsible for fire ignition.

1. Visitor - All persons who are temporarily in the area such as tourists or motorists or other kinds of visitor.
2. Seasonal Resident - All residents and workers who are residing or working in the area for an extended period of time, but who do not permanently reside in the area protected.
3. Permanent Resident - All permanent residents who live in the area protected.
4. Undetermined or Unknown - Person(s) responsible not determined or known.
0 No Person Involved.

G. Age - Enter the age of the person responsible for starting the fire. Even if you do not know the exact age, but are fairly confident within a year or two, enter your best estimate.

1. Less than 5 years old.
2. 5 to 9 years old.
3. 10 to 15 years old.
4. 16 to 24 years old.
5. 25 to 61 years old.
6. 62 to 75 years old.

7. Over 75 years old.
8. Age classification undetermined.
0. No person involved.

H. Sex - Code 1 for male; 2 for female; 3 if unknown; and 0 if no person involved.

I. Activity Involved in Fire Start - Identify the primary activity of the person who started the fire. First decide if the general activity was recreational, occupational, residential, or incendiary. After identifying the general activity, select the code that best describes the specific activity.

Outdoor Recreation Activity involved in Fire Start

01	Hunting
02	Fishing
03	Camping
04	Picnicking
05	Hiking
06	Sightseeing
07	Biking
08	Off-Road Motoring
09	Other Activity not Classified Above or Unknown.

Occupation Involved in Fire Start

11	Farming
12	Ranching
13	Forestry or Wood Products
21	Truck Transportation
23	Aviation
24	Shipping
30	Mining
40	Manufacturing
51	Road Construction
52	Reservoir Clearing
53	Dam Construction
54	Powerline Construction
55	Pipeline Construction
60	Utilities
70	Store, Office
80	Service Industry
90	Other Occupation not Classified Above or Unknown.

Residential Activity Involved in Fire Start

91.	Outdoor
92.	Indoor

Incendiary Activity

1.9 GLOSSARY OF TERMS

Definitions of terms used in this handbook are listed below. Additional fire definitions can be found in: McPherson, G. R., D. D. Wade, and C. B. Phillips. 1990. Glossary of wildland fire management terms used in the United States. Society of American Foresters, 5400 Grosvenor Land, Washington, DC. 138pp. ($8.50)

ACCEPTABLE BURN: Maximum average area burned over a specified period of years that is considered an acceptable loss for a specified area under organized fire suppression.

ACTION PLAN (ICS): Any tactical plan developed by any element of ICS in support of the incident action plan.

ACTIVE RESOURCES (ICS): Resources checked in and assigned work tasks on an incident.

AERIAL IGNITION: Ignition of fuels by dropping incendiary devices or materials from aircraft.

AERIAL IGNITION DEVICE (AID): Incendiary apparatus designed to ignite wildland fuels from an aircraft.

AERIAL TORCH (ICS): Aerial ignition device slung from or mounted on a helicopter that dispenses ignited globs of gelled gasoline.

AEROBIC CAPACITY: The ability to take in, transport, and use oxygen in the active muscles, predicted by the step test or 1.5 mile timed run.

AFFIRMS (Administrative and Forest Fire Information Retrieval and Management System): A user-oriented interactive computer program which permits entry of fire weather observations and fire weather forecasts and which computes danger indices. AFFIRMS will be replaced by the Weather Information Management System in 1993.

AGENCY: Any federal, state, or county organization participating or with jurisdictional responsibilities.

AGENCY ADMINISTRATOR (ICS): Responsible line officer.

AGENCY REPRESENTATIVE (ICS): Individual assigned to an incident from an assisting or cooperating agency who has been delegated full authority to make decisions on all matters affecting that agency's participation at the incident.

AIR ATTACK: The direct use of aircraft in the suppression of wildfires. [syn. AERIAL ATTACK] (cf. HELITACK).

AIR QUALITY CONTROL REGION: A primary air quality administrative area, designated in accordance with the provisions of the 1970 Clean Air Act, on the basis of geographical and meteorological considerations.

ALDS (Automatic Lightning Detection System): Electronic system that detects cloud-to--ground lightning strikes by their electrical discharges and plots their locations.

ANCHOR POINT: An advantageous location, generally a fire barrier, from which to start constructing a fireline; used to minimize the chance of being outflanked by the fire while the line is being constructed.

ANEMOMETER: General name for instruments designed to measure wind speed.

APPROPRIATE SUPPRESSION: A level of response based on approved fire management plans, consistent with land use objectives and executed to minimize suppression costs and resource damages.

AREA IGNITION: Igniting, throughout an area to be burned, several individual fires either simultaneously or in rapid succession and so spaced that they soon influence and support each other to produce a hot, fast-spreading fire throughout the area.

ASPECT: Direction toward which a slope faces.

ASSISTING AGENCY (ICS): Agency directly contributing suppression, rescue, support, or service resources to another agency.

ATMOSPHERIC INVERSION:

(1) Departure from the usual increase or decrease with altitude of the value of an atmospheric property (in fire management usage, nearly always refers to an increase in temperature with increasing height).

(2) The layer through which this departure occurs (also called inversion layer) The lowest altitude at which the departure is found is called the base of the inversion.

ATMOSPHERIC STABILITY: A measure of the degree to which the atmosphere resists turbulence and vertical motion.

AVAILABLE FUEL [N.Am]: The portion of the total fuel that would actually burn under various specified conditions.

AVAILABLE RESOURCES (ICS): Resources assigned to an incident, but not to a specific task, and available in reserve for assignment to a specific task within three minutes (cf. ALLOCATED RESOURCES, PERSONNEL POOL, STAGING AREA).

AVERAGE RELATIVE HUMIDITY (NFDRS): Arithmetic average of the maximum and minimum relative humidities measured at a fire weather station from one base observation time to the next.

BACKFIRE [N.Am]: A fire set along the inner edge of a fireline to consume the fuel in the path of a wildfire and/or change the direction of force of the fire's convection column.

BACKFIRE TORCH: A flame generating device (e.g., a fount containing diesel oil or kerosene and a wick, or a backpack pump serving a flame-jet).

BACKING FIRE: Fire spreading, or ignited to spread, into (against) the wind or downslope. A fire spreading on level ground in the absence of wind is a backing fire [syn. BACKBURN, FLANKING FIRE, HEADING FIRE].

BACKING WIND: Wind that changes direction in a counter clockwise motion.

BEHAVE: A system of interactive computer programs for modelling fuel and fire behavior, comprised of two subsystems: BURN and FUEL.

BELT WEATHER KIT: Belt-mounted canvas case with fitted pockets for anemometer, compass, sling psychrometer, slide rule, water bottle, pencils, and book of weather report forms.

BENEFITING ACTIVITY: Funding source for the activity being benefitted by the management action.

BLACKLINE: Preburning of fuels adjacent to a control line before igniting a prescribed burn. Blacklining is usually done in heavy fuels adjacent to a control line during periods of low fire danger to reduce heat on holding crews and lessen chances for spotting across control line. In fire suppression, a blackline denotes a condition where there is no unburned material between the fireline and the fire edge.

BOARD OF REVIEW: A board or committee selected to review results of fire suppression action on a given unit or the specific action taken on a given fire in order to identify reasons for both good and poor action and to recommend or prescribe ways and means of doing a more effective and efficient job.

BROADCAST BURNING: Allowing a prescribed fire to burn over a designated area within well-defined boundaries for reduction of fuel hazard, as a resource management treatment, or both (cf. SPOT BURNING).

BUFFER ZONE: The area surrounding a prescribed fire within which suppression action can be taken without damage to resources or the environment.

BUILD-UP [N.Am]:

(1) The cumulative effects of long-term drying on current fire danger.
(2) The increase in strength of a fire management organization.
(3) The accelerated spreading of a fire with time.

BURNING BLOCK [N.Am]: In prescribed burning, an area having sufficiently uniform conditions of stand and fuel to be treated uniformly under a given burning prescription. NOTE: [USA] The size ranges from the smallest that allows an economically acceptable cost per acre, up to the largest that can conveniently be treated in one burning period.

BURNING BOSS: Person responsible for managing a prescribed fire from ignition through mopup.

BURNING CONDITIONS: The state of the combined factors of the environment that affect fire behavior in a specified fuel type.

BURNING INDEX (BI): A number related to the contribution of fire behavior to the effort of containing a fire in a specified fuel type.

BURNING OUT: Setting fire inside a control line to consume fuel between the edge of the fire and the control line. A type of suppression fire used to widen control lines during line construction or to eliminate unburned fuels inside the control lines after containment.

BURNING PERIOD: A 24-hour period ending at 10 am.

CAMPAIGN FIRE: A fire normally of size and/or complexity that it requires a large organization and possibly several days or weeks to extinguish [syn. PROJECT FIRE].

CENTER FIRING: Method of broadcast burning in which fire is ignited in the center of the area to create a strong draft; additional fires are then ignited progressively nearer the outer control lines (sometimes in one step) as in draft increases so as to draw the flames and smoke toward the center.

CHAIN: Unit of measure in land survey, equal to 66 feet (80 chains equal 1 mile). Commonly used to report fire perimeters and other fireline distances, this unit is popular in fire management because of its convenience in calculating acreage (e.g., 10 square chains equal one acre).

CHEVRON BURN: Prescribed burning technique in which lines of fire are started simultaneously from the apex of a ridge point, and progress downhill, maintaining position along the contour; used in hilly areas to ignite ridge points or ridge ends.

CLASS OF FIRE: Fires are assigned to one of seven size classes: Class A (up to 0.25 acre), Class B (0.25 - 10 acres), Class C (10 - 100 acres), Class D (100 - 300 acres), Class E (300 - 1000 acres), Class F (1000 - 5000 acres), Class G (5000 acres or more).

COLD FRONT: The leading edge of a mass of air that is colder and drier than the air mass being replaced. After passage of a cold front in the northern hemisphere, west to northwesterly winds of 10 to 20 mph or more often persist for 12 to 24 hours (cf. FRONT, WARM FRONT).

COMMAND STAFF (ICS): Information officer, safety officer, and liaison officer, who report directly to the incident commander.

CONFINE: Restrict a fire within determined boundaries established either prior to the fire or during the fire.

CONTAIN: Surround a fire, and any spot fires, with a control line, as needed, that can reasonably be expected to check the fire's spread under prevailing and predicted conditions.

CONTAINMENT: Completion of a control line around a fire and any associated spot fires which can reasonably be expected to stop the fire's spread.

CONTROL - To reach a stage in a fire suppression action at which the fire is surrounded by a fireline and/or natural barriers and all threat of escape has passed.

COOPERATING AGENCY (ICS): Agency supplying assistance other than direct suppression, rescue, support, or service function to the incident control effort (e.g., Red Cross, law enforcement agency, telephone company).

DEAD FUELS: Fuels with no living tissue in which moisture content is governed almost entirely by atmospheric moisture (relative humidity and precipitation), dry-bulb temperature, and solar radiation.

DEBRIS BURNING FIRE:

(1) In fire suppression terminology, a fire spreading from any fire originally ignited to clear land or burn rubbish, garbage, crop stubble, or meadows (excluding incendiary fires (cf. CAUSES OF FIRE, REFUSE FIRE.

(2) In prescribed fire terminology, a fire used to dispose of scattered, piled, or windrowed dead woody fuel, generally in the absence of a merchantable overstory. Its purpose is to reduce unsightly fuel concentrations, or consume unwanted natural fuels to facilitate subsequent resource management or land use actions on the area (cf. PILING AND BURNING, PROGRESSIVE BURNING, RESIDUE TREATMENT, SITE PREP BURNING, SPOT BURNING, STRIP BURNING, WINDROW BURNING).

DEMOBILIZATION: Release of resources from an incident in strict accordance with a detailed plan approved by the Incident Commander (cf. MOBILIZATION).

DENSITY ALTITUDE: Pressure altitude corrected for temperature deviations from standard atmosphere. Used as an index to aircraft performance characteristics such as take-off distance and rate of climb, density altitude bears the same relation to pressure altitude as true altitude does to indicated altitude (cf. DOWNLOADING).

DETECTION: Those actions taken to find and identify fire ignitions, usually based upon presence of smoke.

DIRECT ATTACK: Any treatment of burning fuel, e.g. by wetting, smothering, or chemically quenching the fire or by physically separating the burning from unburned fuel [syn. DIRECT FIRE SUPPRESSION, DIRECT METHOD]

DIRECT FIRE SUPPRESSION: See DIRECT ATTACK.

DISPATCHING: The timely and economic placement of fire suppression resources on a going fire to accomplish the suppression effort. Officials having initial attack or support responsibilities designate an individual to accomplish the dispatching function.

DRIP TORCH: Hand-held apparatus for igniting prescribed fires by dripping flaming liquid fuel at an adjustable rate on the materials to be burned; consists of a fuel fount, burner arm, and igniter. Fuel used is generally a mixture of 65-80% diesel and 20-35% gasoline.

DROUGHT INDEX: A number representing the net effect of evapotranspiration and precipitation in producing cumulative moisture depletion in deep duff or upper soil layers.

ENERGY RELEASE COMPONENT (ERC): A NFDRS index defined as the computed total heat release per unit area within the fire front at the head of a moving fire.

ENGINE(ICS): Any ground vehicle providing specified levels of pumping, water, and hose capacity but with less than the specified level of personnel (cf. GROUND TANKER).

EFSA (Escaped Fire Situation Analysis): Analysis of factors which influence suppression of an escaped fire from which a plan of attack will be developed; includes development of alternative strategies of fire suppression and net effect of each.

ESCAPED FIRE: Fire which has exceeded initial attack capabilities (cf. EXTENDED ATTACK SITUATION).

EXTENDED ATTACK SITUATION: Situation in which a fire cannot be controlled by initial attack crew within a reasonable period of time. The fire usually can be controlled by additional resources within 24 hours after commencing suppression action (cf. ESCAPED FIRE,EXTRA-PERIOD FIRE).

EXTRA-PERIOD FIRE: A fire which remains uncontrolled beyond the first burning period.

EXTREME FIRE BEHAVIOR: "Extreme" implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One or more of the following is usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously (cf. BLOWUP, CONFLAGRATION, FIRE STORM, MASS FIRE).

FINANCE SECTION CHIEF (ICS): Person responsible to the incident commander for all financial and cost-analysis aspects of the incident and for supervising members of the finance section.

FIRE ANALYSIS: Review of fire management actions taken with respect to a specific fire, group of fires, or fire season in order to identify reasons for effective and ineffective actions and to recommend or prescribe ways and means of doing a more efficient job (cf. BOARD OF REVIEW).

FIRE BEHAVIOR: The manner in which fuel ignites, flame develops, and fire spreads and exhibits other phenomena. The combined effect of the fire's environment on how the fire acts or behaves.

FIRE BEHAVIOR FORECAST: Prediction of probable fire behavior, usually prepared by a Fire Behavior Analyst, in support of fire suppression or prescribed burning operations.

FIREBREAK: (Fuel Break) A natural or constructed barrier used to stop or slow the spread of a fire, or, to provide a control line from which to work.

FIRE DANGER: Sum of constant danger and variable danger factors affecting the inception, spread, and resistance to control, and subsequent fire damage; often expressed as an index.

FIRE DANGER RATING: Fire management system that integrates the effects of selected fire danger factors into one or more qualitative or numerical indices of current fire protection needs.

FIRE DEATH: Fire casualty which is fatal or becomes fatal within one year of the fire.

FIRE ECOLOGY: Area of study addressing relationships among fire, environment, and living organisms.

FIRE EFFECTS: Physical, biological, and ecological impacts of fire on the environment (cf. FIRE BENEFITS, FIRE DAMAGE).

FIRE FAMILY (Fire Data Program): FCCC-based statistical analysis program, fed by the National Fire Weather Library and capable of reproducing NFDRS components and indices currently in use for location which kept data, converting historical weather to the current system. This provides a direct comparison of the NFDRS now with what it would be if NFDRS has existed at the time the weather data were collected.

FIRE FRONT: The strip of primarily flaming combustion along the leading edge of the fire perimeter [syn. FLAMING FRONT] (cf. FLAME DEPTH).

FIRE HAZARD: A fuel complex, defined by volume, type condition, arrangement, and location, that determines the degree and ease of ignition and or resistance to control.

FIRE LINE: The removal or alteration of fuels from a narrow area of the control line by the use of hand tools, power equipment or fire retardant chemicals to control a fire.

FIRE MANAGEMENT: All activities required for the protection of burnable wildland values from fire and the use of prescribed fire to meet land management goals and objectives.

FIRE MANAGEMENT OBJECTIVE: Planned, measurable result desired from fire protection and use based on land management goals and objectives.

FIRE MANAGEMENT PLAN: Statement, for a specific area, of fire policy, objective, and prescribed action; may include maps, charts, tables, and statistical data (cf. PREATTACK PLANNING).

FIRE PLANNING: Systematic technological and administrative management process of designing organization, facilities, and procedure to protect wildland from fire (cf. FIRE MANAGEMENT).

FIRE PRESUPPRESSION: Activities undertaken in advance of fire occurrence to help ensure more effective fire suppression; includes over-all planning, recruitment and training of fire personnel, procurement and maintenance of firefighting equipment and supplies, fuel treatment, and creating, maintaining, and improving a system of fuelbreaks, roads, water sources, and control lines [syn. PRESUPPRESSION].

FIRE PREVENTION: The modification of natural and human factors to reduce wildfire starts and limit adverse effects of wildfire.

FIRE PROTECTION: All activities to protect wildland from fire [syn. PROTECTION].

FIRE QUALS: Computerized interagency summary of fire suppression qualifications of listed personnel. Available information includes fire training record, fire experience record, and physical fitness testing score for each individual (cf. RED CARD, STEP TEST).

FIRE REPORT: Official record of a fire, generally including information on cause, location, action taken, damage, and costs from start of fire until completion of suppression action.

FIRE RETARDANT: Any substance except plain water that by chemical or physical action reduces flammability of fuels or slows their combustion rate (e.g., slurry applied aerially or from the ground during a fire suppression operation).

FIRE RISK: The chance of fire starting, as affected by the nature and incidence of causative agents; an element of the fire danger in any area; any causative agent.

FIRE SEASON: The period or periods of the year during which most wildfires are likely to occur.

FIRE SEVERITY FUNDING: One time authorization for increased spending levels to primarily augment initial attack capability through addition of personnel or equipment; severity is normally brought on due to abnormal weather factors normally leading to conditions which may produce drought conditions.

FIRE SHELTER: A personal protection item carried by firefighters which, when deployed, unfolds to form a pup tent-like shelter of heat-reflective materials. Designed to provide a last resort after a firefighter has become trapped by fire. The current model weighs 2.8 pounds and can be deployed in 20-25 seconds [syn. FOREST FIRE SHELTER].

FIRE SUPPRESSION: All work and activities connected with fire-extinguishing operations, beginning with discovery and continuing until the fire is completely extinguished [syn. FIRE CONTROL, SUPPRESSION] (cf. SUSTAINED ATTACK).

FIRE WEATHER: Weather conditions which influence fire ignition, behavior, and suppression.

FIRE WEATHER FORECAST: Weather prediction specially prepared for use in fire management (cf. LONG RANGE FORECAST, FIRE WEATHER FORECAST, WEATHER ADVISORY, ZONE WEATHER FORECAST).

FIRE WEATHER STATION: Meteorological station specially selected, equipped, and operated to measure the daily variable factors of fire danger.

FOAM: Compounds introduced into a stream of water by special nozzles or proportioning devices to develop a stream of air bubbles surrounded by a tenacious film of water and foaming agent capable of smothering fires; also the foam produced by such equipment.

FRONT: In meteorology, the boundary between tow air masses of differing densities.

FUEL CLASS (NFDRS): Group of fuels possessing common characteristics. Dead fuels are grouped according to timelag (1, 10, 100, and 1000 hour timelag) and living fuels are grouped as herbaceous (annual or perennial) or woody.

FUEL LOADING: Ovendry weight of fuel per unit areas (usually expressed in tons/acre). Loading may be referenced by fuel size or timelag categories.

FUEL MANAGEMENT: Act or practice of controlling flammability and reducing resistance to control of wildland fuels through mechanical, chemical, biological, or manual means, or by fire, in support of land management objectives (cf. FUEL TREATMENT).

FUEL MODEL: Simulated fuel complex for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified.

FUEL MODIFICATION: SEE FUEL TREATMENT.

FUEL MOISTURE CONTENT: Water content of a fuel expressed as a percentage of the oven dry weight of the fuel.

FUEL MOISTURE STICK: Specially manufactured stick or set of sticks of known dry weight continuously exposed to the weather and periodically weighed to determine changes in moisture content. The changes indicate changes in the moisture status and relative flammability of dead fuels that roughly correspond to ten-hour timelag fuels.

FUEL TREATMENT: Any manipulation or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control (e.g., lopping, chipping, crushing, piling and burning) [syn. FUEL MODIFICATION, HAZARD REDUCTION] (cf. FUEL MANAGEMENT, SLASH DISPOSAL).

FUEL TYPE: An identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause a predictable rate of spread or resistance to control under specified weather conditions.

FUELBREAK: Generally wide (60-1000 feet) strips of land on which native vegetation has been permanently modified so that fires burning into them can be more readily controlled. Some fuelbreaks contain firelines (e.g., roads, hand lines) which can be quickly widened with hand tools or by burning out.

FUSEE: Colored flare designed as a railway warning device, widely used to ignite suppression fires and prescribed fires.

GRADIENT WILD: The result of the balance between pressure gradient forces and rotational forces associated with the earth's rotation and the rotation inherent in the wind flow itself. Any horizontal wind tangent to the contour line of a constant pressure surface (or to the isobar of a geopotential surface) at the point in question (cf. SURFACE WIND).

GROUND FIRE: Fire that burns the organic material in the soil layer (e.g., duff, tree roots, punky wood, organic soil, sawdust), that normally support glowing combustion without flame.

HAZARD REDUCTION (Fuels Management) BURNING: Manipulation or removal of fuels to reduce the likelihood of ignition and/or lesson potential damage and resistance to control in the event of ignition; normally hazard reduction is done to reduce the chance of a major fire but can also be done to protect the resource or facility.

HEAD FIRE: A fire front spreading or ignited to spread with the gradient (downwind or upslope).

HELIBASE (ICS): Location within the general incident area for parking, fueling, maintenance, and loading of helicopters.

HELISPOT: Temporary landing location for helicopters, normally constructed on or near the fireline for access of personnel and supplies, and generally without auxiliary facilities and often without road access.

HELITACCK: Use of helicopters and accessories in direct attack.

HELITORCH (ICS): An aerial ignition device slung beneath a helicopter to disperse ignited lumps of gelled gasoline. Used for prescribed burning, including backfiring. [syn. AERIAL TORCH]

HOT-SPOTTING: Reducing or stopping the spread of fire at points of particular rapid rate of spread or special threat; generally the initial step to prompt control, with emphasis on first priorities.

HUMAN-CAUSED FIRE: A fire that is ignited by people or caused by human activities.

ICS (Incident Command System): Combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure with responsibility for management of assigned resources to effectively accomplish stated objectives pertaining to an incident.

IGNITION PATTERN: Manner in which a prescribed fire is ignited. The distance between ignition lines or points and the sequence of igniting them is determined by weather, fuel, topography, firing technique, and other factors which influence fire behavior and fire effects.

INCIDENT (ICS): Occurrence or event (including wildfire), either human-caused or natural phenomena, that requires action by emergency service personnel to prevent or minimize loss of life or damage to property and/or natural resources.

INCIDENT ACTION PLAN (ICS): A document initially prepared at the first planning meeting, containing general control objectives reflecting the overall incident strategy and specific suppression and rescue action plans for the next operational period.

INCIDENT COMMANDER: The person responsible for all activities on a wildfire and exercises the command function. Formerly known as Fire Boss under the Large Fire Organization.

INDIRECT ATTACK: Method of fire suppression in which the control line is located a considerable distance from the fire's active edge; generally used in the case of a fire with rapid rate of spread or high intensity to utilize natural or constructed firebreaks or fuelbreaks and favorable breaks in topography. Intervening fuel is usually burned out, but occasionally the main fire is allowed to burn to the control line, depending on conditions.

INFORMATION OFFICER (ICS): Member of the command staff responsible to the incident commander for the formulation and release of information about the incident to the news media, public, and other appropriate agencies.

INITIAL ATTACK: The control efforts taken by resources which are the first to arrive at the incident.

INVERSION:

(1) Departure from the usual increase or decrease with altitude of the value of an atmospheric property (in fire management usage, nearly always refers to an increase in temperature with increasing height) [syn. ATMOSPHERIC INVERSION, TEMPERATURE INVERSION].

(2) Thee layer through which this departure occurs (also called inversion layer). The lowest altitude at which the departure is found is called the base of the inversion (cf. ISOTHERMAL LAYER).

KEETCH-BYRAM DROUGHT INDEX: Commonly-used drought index developed specifically for fire management applications, with a numerical range from 0 (no moisture deficiency) to 800 (maximum drought) [syn. CUMULATIVE SEVERITY INDEX].

LIAISON OFFICER:

(1) (LFO) Person responsible to the plans chief for liaison work between a fire agency and another cooperating agency or agencies (cf. CREW LIAISON OFFICER).

(2) (ICS) Member of the command staff responsible for interacting with agency representatives from assisting and cooperating agencies.

LIGHT BURN: Degree of burn which leaves the soil covered with partially charred organic material; heavy fuels are not deeply charred.

LOCAL WINDS: Winds that are generated over a comparatively small area by local terrain and weather. They differ from those which would be appropriate to the general pressure pattern, or which posses some other peculiarity.

LOGISTICS SECTION CHIEF (ICS): Person responsible to the incident commander for providing facilities, services, and material in support of the incident.

MAFFS (Modular Airborne Firefighting System): A manufactured unit consisting of five interconnecting tanks, a control pallet, and a nozzle pallet, with a capacity of 3,000 gallons (11 355 liters), designed to be rapidly mounted inside an unmodified C-130 (Hercules) cargo aircraft for use in cascading retardant chemicals on wildfires.

MANAGEMENT IGNITED PRESCRIBED FIRE: Fires intentionally ignited to accomplish management objectives in specific areas under prescribed conditions identified in approved Prescribed Fire Plans.

MIDFLAME WIND: Wind speed at about eye level.

MIXING HEIGHT: Height a column of smoke will rise in the atmosphere.

MODERATE BURN: Degree of burn in which all organic material is burned away from the surface of the soil, which is not discolored by heat; any remaining fuel is deeply charred. Organic matter remains in the soil immediately below the surface.

MONITORING: Periodic evaluation and documentation of a fire and its environment to ensure that the fire is burning within the scope of an approved prescription if a prescribed fire.

MOPUP: Extinguishing or removing burning material near control lines, felling snags, and trenching logs to prevent rolling after an area has burned, to make it safe, or to reduce residual smoke,

MULTIAGENCY COORDINATION SYSTEM (MACS) (ICS): Combination of facilities, equipment, personnel, procedures, and communications integrated into a common system with responsibility for coordination of resources from assisting agencies and support to multiagency emergency operations.

MUTUAL AID: Any form of free direct assistance from one fire agency to another during an emergency, based upon a prearrangement between agencies involved and generally made upon the request of the receiving agency (cf. OUTSIDE AID).

NATIONAL ADVANCED RESOURCES TECHNOLOGY CENTER (NARTC): Multi-agency training facility at Marana Air Park, Marana, Arizona which specializes in presentation of national-level fire management training courses.

NATIONAL FIRE DANGER RATING SYSTEM (NFDRS): Multiple index scheme designed to provide fire suppression and land management personnel with a systematic means of assessing various aspects of fire danger on a day-to-day basis.

NATIONAL INTERAGENCY INCIDENT MANAGEMENT SYSTEM (NIIMS) - A nationally standardized system to promote common terminology, equipment standards, qualifications and incident command structure supported by the National Wildfire Coordinating Group.

NATIONAL WILDFIRE COORDINATING GROUP (NWCG): A national interagency operational group authorized by the U.S. Secretaries of Agricultural and the Interior and designed to coordinate fire management programs of the participating agencies so as to avoid wasteful duplication and to provide a means of constructively working together. The group provides a formalized system to agree upon policy, standards of training, equipment, aircraft, suppression priorities, and other operational areas.

NATURAL BARRIER: Any area where lack of flammable material obstructs the spread of wildfires.

NATURAL FIRE: Any fire of natural origin (eg., lightning, spontaneous combustion, volcanic activity) which is allowed to burn because it is accomplishing one or more resource management objectives.

NATURAL FUELS: Fuels resulting from natural processes and not directly generated or altered by land management practices.

NET VALUE CHANGE (NVC): Sum of the changes resulting from increases (benefits) and decreases (damages) in the value of outputs from the area affected as a result of fire.

NORMAL FIRE YEAR: The year with the third greatest number of fire in the past ten.

NORMAL UNIT STRENGTH (NUS): The amount of noncapitalized fire fighting equipment needed by a refuge to meet 70 percent of suppression needs.

ONE-HOUR TIMELAG FUELS: Fine fuels consisting of dead herbaceous plants and roundwood less than 1/4-inch in diameter, including the uppermost litter layer.

ONE-HUNDRED-HOUR TIMELAG FUELS: Dead fuels Consisting of roundwood 1-3 inches in diameter and, to a rough approximation, the layer of the forest floor extending from 3/4 to 4 inches below the surface.

ONE-THOUSAND-HOUR TIMELAG FUELS: Dead fuels consisting of roundwood 3-8 inches in diameter and the layer of the forest floor more than about 4 inches below the surface.

OPERATIONS SECTION CHIEF (ICS): Person responsible to the incident commander for managing all operations directly applicable to an incident's primary mission.

OVERHEAD:

(1) Supervisory or specialist personnel working in some capacity related to the control of a going fire (or fires) but not including leaders of regularly organized fire crews and equipment operators while engaged in their regularly assigned duties.

(2) (ICS) Personnel assigned to supervisory positions, including Incident Commander, command staff, general staff, directors, supervisors, and unit leaders (cf. INCIDENT OVERHEAD).

PARALLEL BURNING:

(1) A type of suppression fire. Igniting a narrow strip of fuel adjacent to a control line and then burning successively wider adjacent strips as the preceding strip burns out.

(2) Burning only a relatively narrow strip or strips through an area of slash, leaving the remainder.

(3) Burning slash in strips generally 100-300 feet wide along roads or barriers to subdivide the slash area into blocks.

PARTS OF A FIRE: On typical free-burning fires, fire spread is uneven with the main spread moving with the wind or up slope. The most rapidly moving portion is designated the head of the fire, the adjoining portions or the perimeter at right angles to the head are known as flanks, and the slowest moving portion is know as the rear.

PATCH BURNING: Burning in patches to prepare sites for group planting or sowing or to form a barrier to subsequent fires.

PING-PONG BALL SYSTEM: Mechanized method of dispensing DAIDs (delayed aerial ignition devices) at a selected rate. The DAIDs are polystyrene balls, 1.25 inches in diameter, containing potassium permanganate. The balls are fed into a dispenser, generally mounted in a helicopter, where they are injected with a water-glycol solution and then drop through a chute leading out of the helicopter. The chemicals react thermally and ignite in 25-30 seconds. The space between ignition points on the ground is primarily a function of helicopter speed, gear ratio of the dispenser, and the number of chutes used (up to four) (cf. GRID IGNITION TECHNIQUE).

PLANNING SECTION CHIEF (ICS): Person responsible to the incident commander for collecting, evaluating, disseminating, and using information about the development of the incident and the status of resources, and for supervising all members of the planning section. Also responsible for finalizing the incident action plan.

PORTABLE PUMP: Small gasoline-driven pump that can be carried to a water source by one or two firefighters or other conveyance over difficult terrain.

PREATTACK PLANNING: Within designated blocks of land, planning the locations of firelines, fire camps, water sources, and helispots; and constraints to travel on various types of attack units; and determining what types of attack units likely would be needed to construct particular firelines, their probable rate of fireline construction, and topographic constraints on fireline construction.

PRESCRIBED BURNING (Prescribed Fire Application): Controlled application of fire to wildland fuels in either their natural or modified state, under specified environmental conditions which allow the fire to be confined to a predetermined area and at the same time to produce the fireline intensity and rate of spread required to attain planned resource management objectives [syn. CONTROLLED BURNING] (cf. BROADCAST BURNING, SITE PREP BURNING, UNDERBURNING).

PRESCRIBED FIRE: The application of fire to wildland fuels to achieve identified land use objectives. May be management ignited prescribed fire or prescribed natural fire.

PRESCRIBED NATURAL FIRE: Fires ignited by natural means (usually lightning) which are permitted to burn under specific environmental conditions, in preplanned locations, with adequate fire management personnel and equipment available to achieve natural ignition fire patterns.

PRESCRIPTION: Written statement defining objectives to be attained as well as temperature, humidity, wind direction and wind speed, fuel moisture content, and soil moisture, etc. under which the fire will be allowed to burn, generally expressed as acceptable ranges of the various indices, and the limit of the geographic area to be covered.

PRESUPPRESSION: Activities undertaken in advance of fire occurrence to help ensure more effective fire suppression; includes over-all planning, recruitment and training of fire personnel, procurement and maintenance of firefighting equipment and supplies, fuel treatment, and creating, maintaining, and improving a system of fuelbreaks, roads, water sources, and control lines. [syn. FIRE PRESUPPRESSION]

PROTECTION BOUNDARY: The exterior perimeter of an area within which a specified fire agency has assumed a degree of responsibility for fire protection.

RADIO CACHE (ICS): May consist of a number of portable radios, a base station, and in some cases a repeater stored in a predetermined location for dispatch to the incident.

RATE OF SPREAD: Relative Activity of a fire in extending its horizontal dimensions, expressed as rate of increase of the perimeter, rate of increase in area, or rate of advance of its head, depending on the intended use of the information; generally in chains or acres per hour for a specific period in the fire's history.

RAWS (Remote Automatic Weather Stations): An apparatus that automatically acquires, processes, and stores local weather data for subsequent transmission to a receiving station via the GOES Satellite or telephone line for use in the National Fire Danger Rating System.

READINESS:

(1) Condition or degree of being completely ready to cope with a potential fire situation.
(2) Mental readiness to recognize changes in fire danger and act promptly when action is appropriate.

REBURN:

(1) Repeat burning of an area over which a fire has previously passed but has left fuel subsequently ignitable.
(2) Also the area so reburned.

RED CARD: Fire qualification card issued to fire rated persons showing their qualifications to fill specified fire suppression positions in a large fire suppression or incident organization and also their training needs (cf. FIRE QUALS).

RED FLAG WATCH/WARNING/CANCELLATION: Term used by fire weather forecasters to alert forecast users to special and/or adverse weather conditions that present a high probability of extreme fire behavior. The Red Flag Watch is the first stage: it notifies the using agencies, usually 24-72 hours ahead of the event, that current and developing meteorological conditions may evolve into dangerous fire weather. If the adverse weather pattern continues to develop and adverse conditions are expected within 24 hours, the second stage, Red Flag Warning, is given. Cancellation of either the Watch or Warning is given whenever the special or adverse conditions are no longer expected to develop or have ceased to exist. The Watch/Warning is carried in all forecasts until specifically canceled.

REFUGE: The term refuge applies to all units of the National wildlife Refuge System, except coordination areas as defined in 50 CFR 25.12.

REHABILITATION: The activities necessary to repair damage or disturbance caused by wildfire or the fire suppression activity.

RELATIVE HUMIDITY (RH): Percentage of the actual vapor pressure of the air to the saturation vapor pressure; the ratio, expressed as a percentage, of the amount of water vapor in the air compared to the amount the air is capable of holding under the same conditions.

RESISTANCE TO CONTROL: Relative difficulty of constructing and holding a control line, as affected by fire behavior and resistance to line construction [syn. DIFFICULTY OF CONTROL].

RESOURCES:

(1) The personnel and equipment available for suppression of a wildfire.
(2) (ICS) All personnel and major items of equipment available or potentially available for assignment to incident tasks on which status is maintained.
(3) The natural resources of an area, such as timber, grass, watershed values, recreation values, and wildlife habitat.

RESOURCE ADVISOR: Resource specialist responsible to the refuge manager for gathering and analyzing information concerning natural resources and their uses that may be impacted by the fire or fire suppression activities.

RESOURCE VALUE-AT-RISK: Fire suppression planning tool providing a relative expression (in five classes) of fire effects on all resources (not the value of the resources themselves).

RING FIRE: A fire started by igniting the full perimeter of the intended burn area so that the ensuing fire fronts converge toward the center of the burn.

SAFETY OFFICER (ICS): Member of the command staff responsible to the incident commander for monitoring and assessing hazardous and unsafe conditions and developing measures for assessing personnel safety on the incident.

SCORCH HEIGHT: Level up to which foliage has been browned (killed) by fire.

SECTION (ICS): That organizational level having functional responsibility for primary segments of incident operations such as: operations, planning, logistics, finance. The section level is organizationally between branch and incident commander.

SEVERE BURN: Degree of burn in which all organic material is removed from the soil surface,and soil surface is discolored (usually red) by heat; organic material below the surface is consumed or charred (cf. FIRE SEVERITY, LIGHT BURN, MODERATE BURN).

SITE PREPARATION: Removal or killing of unwanted vegetation, residue, etc. by use of fire, herbicides, or mechanical treatment in preparation for reforestation and future management.

SITE PREPARATION BURNING: Fire ignited to expose adequate mineral soil and control competing vegetation until seedlings of the desired species become established.

SITUATION ANALYSIS: Analysis of factors which influence suppression of an escaped fire from which a plan of attack will be developed; includes development of alternative strategies of fire suppression and net effect of each.

SLASH: Unusual concentrations of downed fuel resulting from such natural events as wind, fire, or snow breakage or such human activities as logging or road construction.

SLASH DISPOSAL BURN:

(1) In fire suppression terminology, a fire spreading from any fire originally ignited to clear land or burn rubbish, garbage, crop stubble, or meadows (excluding incendiary fires.

(2) In prescribed fire terminology, a fire used to dispose of scattered, piled, or windrowed dead woody fuel, generally in the absence of a merchantable overstory. Its purpose is to reduce unsightly fuel concentrations, or consume unwanted natural fuels to facilitate subsequent resource management or land use actions on the area. [syn. DEBRIS BURNING].

SLOPOVER: A fire edge that crosses a control line or the resultant fire.

SMOKE MANAGEMENT: Application of knowledge of fire behavior and meteorological processes to minimize degradation of air quality during prescribed fires.

SMOKE PLUME: The gases, smoke, and debris that rise slowly from a fire while being carried along the ground because the buoyant forces are exceeded by those of the ambient surface wind.

SMOKE SENSITIVE AREA (SSA): Area in which smoke from outside sources is intolerable, for reasons such as heavy population, existing air pollution, or intensive recreation or tourist use.

SPOT FIRE: Fire ignited outside the perimeter of the main fire by flying sparks or embers [syn. JUMP FIRE (cf. SPOTTING FIRE).

SPOT WEATHER FORECAST: Special prediction of atmospheric conditions at a specific site, usually requested in connection with a wildfire or a prescribed fire (cf. FIRE WEATHER FORECAST, ZONE WEATHER FORECAST).

STAGING AREA:

(1) An area within a fire camp where personnel and equipment are assembled for transportation to the line.

(2) (ICS) A temporary on-incident location where incident personnel and equipment are assigned on a three (3) minute available basis.

STEP TEST: Five-minute test used to predict a person's ability to take in, transport, and use oxygen (aerobic capacity), the most important factor limiting the ability to perform arduous work. A scoring system rates fitness numerically, based on postexercise pulse rate, body weight, and age, in terms of milliliters of oxygen consumed per kilogram of body weight per minute. Test scores (aerobic capacity) indicate fitness for various types of field work. Fire suppression jobs have been assigned fitness scores ranging from 45 for fireline construction and other strenuous work to 35 for jobs involving less effort. Applicants must attain the necessary test score to qualify for these positions (cf. FIRE QUALS).

STRATEGY: Overall plan of attack for fighting a fire which gives regard to the most cost-efficient use of personnel and equipment in consideration of values threatened, fire behavior, legal constraints, and objectives established for management of natural resources" leaves decisions on tactical use of personnel and equipment to line commanders in the suppression function.

STRIKE TEAM (ICS): Specified combination of the same kind and type of resources, with common communications, and a leader.

STRIP BURNING:

(1) A type of suppression fire. Igniting a narrow strip of fuel adjacent to a control line and then burning successively wider adjacent strips as the preceding strip burns out.

(2) Burning only a relatively narrow strip or strips through an area of slash, leaving the remainder.

(3) Burning slash in strips generally 100-300 feet wide along roads or barriers to subdivide the slash area into blocks. [syn. PARALLEL BURNING].

STRIP-HEAD FIRE: A series of lines of fire ignited near and up wind (or down slope) of a firebreak or backing fire so they burn with the wind (or up slope) toward the firebreak or backing fire.

SUPPRESSION or SUPPRESSION ACTION: All activities beginning with the discovery of a wildfire, continuing until it is extinguished.

SURVEILLANCE: Periodic evaluation and documentation of a fire and its environment to ensure that the fire is burning within the scope of an approved fire suppression plan.

TACTICS: Planned operational actions that determine exactly where and how to build a fireline and what other fire suppression measures are necessary to extinguish a fire; must be consistent with the strategy established for suppressing the fire.

TASK FORCE (ICS): Any combination of resources with common communications and a leader. Fire control resources informally assembled for a specific mission.

TEN-HOUR TIMELAG FUELS: Dead fuels consisting of roundwood 1/4 to 1 inch in diameter and, to a rough approximation, the layer of litter extending from immediately below the surface to 3/4 inch below the surface.

TEST FIRE: Prescribed fire ignited to evaluate such things as fire behavior, efficiency in fire detection, or fire suppression measures.

TIMELAG (TL): Time necessary, under specified conditions, for a fuel particle to lose approximately 63% of the difference between its initial moisture content and its equilibrium moisture content. Providing conditions remain unchanged, a fuel will reach 95% of its equilibrium moisture content after 4 timelag periods.

TOTAL MOBILITY: Capability to move, position, and utilize established forces to meet existing and anticipated fire protection needs nationwide (cf. NIFC, NATIONAL COORDINATION CENTER).

TRACTOR PLOW (ICS): Any tracked vehicle, with a plow for exposing mineral soil, with transportation and personnel for its operation.

UNIFIED COMMAND (ICS): Method for all agencies or individuals who have jurisdictional responsibility, and in some cases those who have functional responsibility at the incident, to contribute jointly to (a) determining overall objectives for the incident, and (b) selection of a strategy to achieve objectives.

URBAN/WILDLAND INTERFACE: Line, area, or zone where structures and other human development meets or intermingles with undeveloped wildland or vegetative fuels [syn. RURAL-URBAN INTERFACE].

VALUES-AT-RISK: Any or all natural resources, improvements, or other values which may be jeopardized if a fire occurs (cf. RESOURCE VALUE-AT-RISK).

VENTILATION FACTOR: A numerical value relating the potential of the atmosphere to disperse airborne pollutants from a stationary source calculated by multiplying the mixing height by the transport wind speed.

VISIBILITY: The greatest distance at which selected objects can be seen and identified, or its equivalent derived from instrumental measurements.

WARM FRONT: The discontinuity of at the forward edge of an advancing mass of air which is displacing a retreating colder air mass (cf. COLD FRONT, FRONT).

WATERSHED: Geographic area that drains into a common water course.

WEATHER ADVISORY: In aviation forecasting, an expression of hazardous weather conditions not predicted in the zone weather forecast, as they affect the operation of air traffic (cf. FIRE WEATHER FORECAST, RED FLAG WATCH/WARNING/CANCELLATION).

WEATHER OBSERVER (ICS): Person responsible to the Situation Unit Leader for collecting current weather data and information at the incident and providing them to an assigned meteorologist, Fire Behavior Specialist, or the Situation Unit Leader.

WET LINE: A line of water, or water and chemical retardant, sprayed along the ground, and which serves as a temporary control line from which to ignite or stop a low intensity fire.

WILDERNESS [USA]: An area established by the Federal Government and administered either by the Forest Service, National Park Service, Fish & Wildlife Service, or Bureau of Land Management in order to conserve its primeval character and influence for public enjoyment, under primitive conditions, in perpetuity.

WILDFIRE: A free-burning fire requiring a suppression response; all fire other than prescribed fire that occurs on wildlands.

WIMS (Weather Information Management System): A user-oriented interactive computer program which permits entry of fire weather observations and fire weather forecasts and which computes danger indices.

ZONE WEATHER FORECAST: Fire weather forecast issued specifically to fit the requirements of fire management needs (i.e., time, area, and weather elements), issued on a regular basis during the normal fire season. Zones or areas are a combination of administrative and climatological areas, usually about the size of an individual forest or district.

FIRE MANAGEMENT PREPAREDNESS AND PLANNING HANDBOOK

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●U.S. GOVERNMENT PRINTING OFFICE: 1995- 87-086/34038

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09-12-97